AN ABSTRACT OF THE THESIS OF

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The purpose of this study was three fold: 1) to determine if false consensus effects would be found for estimates of sexual behaviors, 2) to determine the directional accuracy of consensus estimates for subscribers and nonsubscribers and 3) to determine if the degree of accuracy of those estimates was influenced by self-esteem, sexual esteem, collective self-esteem, and religiosity. A questionnaire was administered to a sample of 821 university students to gather consensus estimates for twelve sexual behavior items. False consensus effects were found for all twelve behavioral items and further analysis was done to determine the directional accuracy of the estimates as well as to determine what motivational factors might influence the degree of accuracy of the consensus estimates. The specific motivational factors examined were self-esteem, sexual esteem, collective self-esteem, and religiosity. These four factors were measured using the following scales: 1) the Self-Esteem Scale (SES) (Rosenberg, 1965), 2) the Sexuality Scale (SS) (Snell & Papini, 1989; Wiederman & Allgeier, 1993), 3) the Collective Self-Esteem Scale Revised (CSES-R) (Luhtanen & Crocker, 1992) and 4) the Scale of Attitude Towards Christianity (Francis & Stubbs, 1987; Francis, 1989).

Results of the study indicated that although significant false consensus effects were found for all twelve behavioral items, the directional accuracy of subscriber's estimates of consensus was not consistently or predictably different from the directional accuracy of nonsubscriber's estimates of consensus. A motivation theory for false consensus effects as measured by the self-esteem scale, sexuality scale, collective self-esteem scale, and religiosity scale used in this study was not supported.

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Peggy Jo Pedersen

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THE FALSE CONSENSUS EFFECT IN ESTIMATES OF SAFE AND UNSAFE SEXUAL PRACTICES

CHAPTER I: INTRODUCTION

Introduction to the Problem

Sexually transmitted diseases (STDs) present today's public health professional with extraordinary challenges. These challenges include not only trying to understand and control ever more deadly pathogens, but also the call to address issues of social values, societal norms, cultural stigmas, international politics, and economic resources as they relate to disease transmission.

The scope of the STD problem in the United States is daunting. It is estimated that one of every two Americans will acquire one or more STDs by age 30-35 (Handsfield, 1992). Eighty-six percent of the 13 million Americans afflicted by STDs (other than AIDS) are 15-29 years of age. Societal costs for STDs, excluding AIDS, are estimated to exceed $3.5 billion a year (CDC, 1992a; Johnson, 1990). One in ten students on U.S. college campuses is estimated to have chlamydia or human papilloma virus (HPV) (Gayle, Keeling, Garcia-Tunon, Kilbourne, Narkunas, Ingram, & Curran, 1990) and in a recent study conducted at the University of California at Berkeley, nearly half (46%) of the women in the study tested positive for HPV (Blakeslee, 1992). Pelvic inflammatory disease (PID) leaves 100,000 women in the U.S. infertile every year (Turner & Rubinson, 1993). Cases of genital herpes (HSV-2) have increased tenfold in the U.S. in the last ten years and current estimates of genital herpes sufferers in this country are 25-30 million (Johnson, Nahmias, & Magder, 1989; Rubinson & Turner, 1993). In the United States today, 1 to 1.5 million residents are chronic carriers of the Hepatitis B virus (HBV) and 300,000 new HBV infections are diagnosed each year. (Hepatitis B Training Manual for Health Care Providers, 1992). Syphilis rates have spiraled and the 1992 rate of syphilis is

double that of 1952 rate when syphilis was at an all time low (Yankauer, 1994). In addition, HIV/AIDS continues to spread throughout this country at an alarming rate with people in their 20's accounting for one of every five AIDS cases (Willis, 1993).

Although all sexually active persons are potentially at risk for contracting a STD, it appears that adolescents and young adults are at particularly high risk. Previous research has identified the following behaviors that put adolescents and young adults at increased risk for AIDS and other STD's: 1) high levels of sexual activity (Abrams 1990, Hein 1988; Gray & Saracino, 1991), 2) serial monogamy (Catania, Dolcini, Coates, Kegeles, Greenblatt, Puckett, Corman, & Miller, 1989; Abbott, 1988; Moore & Rosenthal, 1991; Gray & Saracino, 1991; Hernandez & Smith, 1990), 3) inconsistent use or no use of condoms (Hein, 1988; Turtle, 1989, Valdiserri, 1989; Gray & Saracino, 1991), and 4) experimentation with alcohol and other drugs, including intravenous drugs (Gayle & Keeling, 1990; Gray & House, 1989; Remafedi, 1988). These high risk behaviors may be attributed in part to fatalistic attitudes (Moore & Rosenthal, 1991), a lack of perceived vulnerability (Taylor-Nicholson, Wang, & Adame, 1989; Prohaska, Albrecht, Levy, Sugrue, & Kim, 1990; Hayes, 1991; Snyder & Rouse, 1992), and a lack of sexual communication skills (Moore & Rosenthal, 1991; Ward, 1991; Flora & Maibach, 1990).

It would appear that this population warrants special attention when designing prevention programs. Findings from prior research designed to examine the sexual behavior practices of adolescents and young adults have reported that this age group has significant difficulty in accurately assessing personal risk (O'Keeffe, Nesselhof-Kendall & Baum, 1990; Petrosa & Wessinger, 1990; Mickler, 1993) and that behavioral expectations of salient others and social influences may have a greater influence on actions than actual attitudes (Fishbein, 1990; Boyd & Wandersman, 1991; Petrosa & Jackson, 1991; Ross & McLaws, 1992). Further research is needed to better understand the cognitive and social contexts in which assessment of risk and evaluation of norms are being made. Viewing

these constructs within the framework of social comparison theory may offer some new insights.

Historically, risk perception has been viewed in terms of that which has potential to cause physical harm. With this in mind, many community and school intervention programs have targeted educating individuals about the physical health risks of various personal behaviors in an attempt to motivate people to make behavioral changes. While risk of physical harm is certainly a component of health decision making, risk may also be conceptualized in terms of social perceptual factors. Risk of being viewed as abnormal, risk of embarrassment, and risk of being rejected may also enter into the assessment of personal threat.

According to Festinger's (1954) theory of social comparison, people will tend to have increased confidence in their opinions, choices, and actions if they perceive that others believe and act similarly. Thus, social comparisons are a natural way for individuals to evaluate or validate their opinions, abilities, and actions. Understanding how and why an individual makes social comparisons may yield important information in the search for more effective models to promote long term health behavior change.

Social comparison theory suggests individuals compare themselves to others in society for various reasons or with various goals in mind. Sometimes they seek to appraise their abilities and thus self-evaluation is the goal of comparison. At other times, the goal of comparison is self-improvement and they may do this by comparing themselves to others whom they perceive are better than themselves on some dimension (upward comparison). Lastly, individuals can compare themselves to others for the purpose of self-enhancement. Self-enhancement most often involves feeling better about oneself by comparing oneself to someone whom you feel is inferior on some dimension (downward comparison) (Woods & Taylor, 1991).

As individuals compare themselves to others in society, certain biases have consistently emerged. The possible effect of these social comparison biases on health

behavior choices has been minimally studied. In 1977, Ross, Greene and House introduced the term "false consensus effect" to describe one bias of social comparison in which individuals tend to perceive their own choices, judgments, and attributes as relatively common as compared to others. The false consensus effect has been studied extensively and the effect reproduced in literally hundreds of studies although the underlying mechanisms of this form of social comparison remain unclear (Mullen, Atkins, Champion, Hardy, Story, & Vanderklkok, 1985; Marks & Miller, 1987).

In addition to the false consensus bias, consensus estimates can be looked at in terms of accuracy. The question of accuracy is different from the false consensus effect. Accuracy of consensus estimates represents the degree to which a person is accurate in evaluating the proportion of their friends or peers who behave as they do (Suls, Wan, & Sanders, 1988). For example, a student who always uses a condom during vaginal intercourse may see his/her behavior as more common than a student who does not use a condom (false consensus effect), but the condom user's estimate could be an overestimation or an underestimation of the actual population figures for this behavior. The accuracy of consensus estimates may be influenced by the desirability of the behavior (Goethals, 1986). Previous work examining the accuracy consensus estimates and health relevant behaviors has demonstrated a tendency for persons to overestimate consensus for undesirable health behaviors and in some cases, underestimate consensus for protective health behaviors. Overestimating consensus for personal behaviors may enable individuals to perceive their undesirable behavioral choices as more acceptable and "mainstream" by making the assumption that most others are behaving similarly to them. Underestimating consensus for protective health behaviors may serve to provide a feeling of personal uniqueness and self-enhancement.

Four theoretical perspectives or mechanisms have most commonly been put forth to explain the false consensus effect: 1) selective exposure and cognitive availability, 2) salience and focus of attention, 3) causal attribution processes and 4) motivational

processes (Marks & Miller, 1987). Selective exposure and cognitive availability can best be explained as the "top of the head" phenomena (Taylor & Fiske, 1978; Tversky & Kahneman, 1973). Ross et al. (1977) have suggested that when we compare the self to others, we naturally access information about similarity more readily than disagreement and this would tend to increase estimates of one's own position. Because individuals typically socialize with others of "like" opinion and position, the availability of information supporting agreement is enhanced. Work by Sherman, Presson, Chassin, Corty, & Olshavsky (1983) investigating the false consensus effect in estimates of smoking prevalence, found support for the selective exposure theory.

The theory of salience and focus of attention is similar to the selective exposure theory in that a "top of the head" process is being carried out. The major difference is that this salience is not based on a selective exposure to similar others, but rather a focus of attention on one's own position and not on alternatives. If an individual thinks only of one position, this focus may augment consensus estimates as this is the only information in the immediate consciousness. Likewise, if one commits to a single position or action, that position or action becomes the focus of attention and alternative positions or actions are not salient or readily available in thought processes (Marks & Miller, 1977).

Causal attribution processing is based on active reasoning. False consensus, in this theory, is an outgrowth of the tendency of an individual to attribute the cause of his/her own behavior to situational (environmental) factors, rather than dispositional (personality) factors (Gilovich, Jennings, & Jennings, 1983; Zuckerman & Mann, 1979). The underlying assumption of this perspective is that situations will affect others in a similar manner to the self.

A final theoretical theory that has been put forth to explain the false consensus effect is one of motivational processes. Motivational processes emphasize function. The positioning of the self in relation to others may serve the function of 1) enhancing perceived social support, 2) validating the correctness or appropriateness of an opinion or action, 3)

enhancing or maintaining self-esteem, 4) keeping or restoring cognitive balance, and 5) reducing tensions of social interactions by augmenting similarity and therefore likability (Marks & Miller, 1977). Thus, whether consciously or unconsciously, we may be motivated to make skewed estimates of consensus to meet specific needs in our lives.

Two studies have been completed exploring the false consensus effect relative to specific health behaviors. Sherman et al. (1983) studied the false consensus effect (FCE) and its underlying mechanisms in relation to adolescent cigarette smoking. They found a significant FCE among teen smokers and support for the underlying mechanisms of selective exposure and motivational distortion. Suls, Wan, and Suanders (1988) measured FCE over a variety of health behaviors. In addition to measuring FCEs, they were also interested in the directional accuracy of those FCEs and hypothesized that college students would overestimate consensus for undesirable health behaviors and underestimate consensus for desirable behaviors. In theory, overestimating consensus for unhealthy/risky/undesirable behaviors may serve to make those behavioral choices seem more common and therefore more acceptable. Underestimating consensus for healthy/safe/desirable behaviors may, on the other hand, make the subscriber feel more unique and thus be self-enhancing. Health behaviors examined included smoking behavior, drinking behavior, caffeine use, nonprescription medication use, marijuana use, snacking between meals, use of a safety belt, eating breakfast, and calling a physician when ill. The data strongly supported the hypothesis of overestimation and some support was found for the hypothesis of underestimation. The practical implication of this work is that some individuals may resist or ignore interventions or health promotion information by overestimating consensus, and therefore support, for unhealthy practices. The phrase "everyone else I know is doing it, so why not me" epitomizes this line of reasoning. In addition, the more common one feels one's behavior is, the less personal risk he/she may perceive for that given behavior (Suls et al., 1988).

These skewed perceptions of risk may have important implications for health educators seeking to design behavioral interventions or otherwise assist individuals in making healthy behavioral choices and warrant further study. The importance of understanding how individuals assess personal risk and subjective norms within a social context cannot be overstated. Health educators can only enhance the effectiveness of behavior change interventions by further understanding the role of social comparison in health behavior and decision making.

Statement of the Problem

Previous work examining the role of the false consensus effect and health relevant behaviors has demonstrated a tendency for persons to overestimate consensus for undesirable health behaviors and in some cases, underestimate consensus for protective health behaviors. These biases in social comparison may enable individuals to perceive their undesirable behavioral choices as more acceptable and "mainstream" by making the assumption that most others are behaving similarly to them. Underestimating consensus estimates for protective health behaviors may serve to provide a feeling of personal uniqueness and self-enhancement. Findings from previous studies of false consensus and health behavior provide support for the underlying mechanisms of motivational processes and selective exposure.

To date, no research has been done which specifically looks at the false consensus effect (FCE) and sexual behavior and the possible underlying mechanism(s). Is personal risk perception for AIDS and other STD's skewed by biases in social comparison, and if so, how? These questions remain unanswered.

Purpose of the Study

The purpose of this study was to determine the accuracy of consensus estimates for sexual behaviors and the degree to which the accuracy of those estimates was influenced by the motivational processes of social support, self-esteem maintenance, and social interaction goals. More specifically, through the use of a questionnaire, the study elicited consensus estimates regarding sexual behaviors and determined the role of self-esteem, sexual esteem, collective self-esteem, and religiosity in making those estimates.

Research Questions

1. Will significant false consensus effects be found for estimates of sexual behaviors?
2. Will there be differences between subscribers and nonsubscribers on directional accuracy of consensus estimates for sexual behaviors?
3. Will accuracy of consensus estimates be significantly associated with self-esteem scores?
4. Will accuracy of consensus estimates be significantly associated with collective self-esteem scores?
5. Will accuracy of consensus estimates be significantly associated with sexuality scale scores?
6. Will accuracy of consensus estimates be significantly associated with religiosity scores?
7. Will there be a significant association between the following variables (age, gender, ethnic identity, religious affiliation, place of residence, evangelicalism, or partner gender) and accuracy of consensus estimates?
8. What variables, if any, will best predict accuracy of consensus estimates for sexual behaviors?

The following null hypotheses were developed to test research questions 1-8 respectively:

1. There will be no significant false consensus effects for sexual behaviors.
2. Subscribers and nonsubscribers will not accurately estimate consensus for sexual behaviors.
3. There will be no significant association between accuracy of consensus estimates and self-esteem scores.
4. There will be no significant association between accuracy of consensus estimates and sexuality scale scores.
5. There will be no significant association between accuracy of consensus estimates and collective self-esteem scores.
6. There will be no significant association between accuracy of consensus estimates and religiosity scores.
7. There will be no significant relationship between the following variables (age, gender, marital status, ethnic identity, student classification, religious affiliation, place of residence, evangelicalism, and partner gender) and accuracy of consensus estimates.

Significance of the Study

Previous research has indicated a lack of perceived vulnerability as one of the major barriers in preventing spread of AIDS and other STD's in the adolescent and young adult population (Taylor-Nicholson et al., 1989; Prohaska et al. 1990; Hayes, 1991). From a social comparison perspective, this lack of perceived risk may, in part, be explained via biases in the comparison process such as the false consensus effect. Research is needed to verify the existence and magnitude of the false consensus effect in estimations of sexual behaviors. In addition to confirming FCE in relation to sexual behaviors, the accuracy of those effects and the mechanism(s) underlying those effects require further study. By seeking to understand the underlying mechanisms of such effects, health educators can work to create intervention programs addressing the factors that shape this perceptual bias.

Delimitations

This study was delimited to students at Oregon State University enrolled in selected 100, 200, 300, and 400 level classes that met the baccalaureate core requirement. It was further delimited to the use of data collected through a questionnaire which included scales designed by Rosenberg (1965), Luhtanen and Crocker (1992), Francis and Stubbs (1987) and Francis (1989), Wiederman and Allgeier (1993) and the researcher. Friends in one's current social group were delimited to non married friends for the purpose of consensus estimates.

Limitations

The findings of this study were limited by the interpretation and honesty of the subjects in response to the questionnaire. The non-random sampling technique limited the generalizability of the findings of this study.

Definition of Terms

1. **Subscriber** - a subject who responded affirmatively (yes) to a sexual behavior question.
2. **Nonsubscriber** - a subject who responded negatively (no) to a sexual behavior question.
3. **False Consensus Effect** - the tendency for individuals to perceive their own choices, judgments, and actions as relatively common as compared to others.
4. **Accuracy of Consensus Estimates** - the degree to which individuals overestimate or underestimate the true prevalence of their positions in the social environment (Marks & Miller, 1987).

5. **Overestimation of Consensus** - when an individual estimates that a greater number of others behave or believe like him/herself as compared to the actual number.

6. **Underestimation of Consensus** - when an individual estimates that fewer others behave or believe like him/herself as compared to the actual number, also termed false uniqueness.

7. **Self-esteem** - the extent to which one prizes, values, approves or likes oneself. One's personal identity or how one sees oneself as an individual.

8. **Collective Self-esteem** - one's social identity or "that part of an individual's self-concept which derives from his knowledge of his membership in a social group (or groups) together with the value and emotional significance attached to that membership (Tajfel, 1981, p. 255). How one views the social group(s) to which one belongs.

CHAPTER II: LITERATURE REVIEW

Introduction

According to Festinger's (1954) theory of social comparison, people will tend to have increased confidence in their opinions, choices, and actions if they perceive that others believe and act similarly. Thus, social comparisons are a natural way for individuals to evaluate or validate their opinions, abilities, and actions. In addition, social comparisons have been found to offer a means for individuals to improve abilities, or to increase feelings of self worth (self-enhancement). Personal health behaviors may be evaluated or influenced by social comparative processes much like other domains. Understanding how and why an individual makes social comparisons may provide important information for health professionals seeking to encourage desirable behaviors and alter undesirable behaviors.

This discussion begins with an examination of the history of social comparison theory and goals of the comparative process. This is followed by definitions and a summary of the purposed determinants of consensus biases. Finally, the discussion will include a review of the literature specific to health behaviors and false consensus effects.

Social Comparison Theory: A Historical Overview

Social comparison theory originated from the work of Leon Festinger (1954a, 1954b). Festinger sought to provide a framework for understanding how individuals might use others (comparisons to others) to satisfy their own need to know if their opinions, expectations, and choices were appropriate or correct. His basic assumption was that the drive to "know" should lead to pressure for uniformity. In 1954, at the Nebraska Symposium on Motivation, Festinger summarized the major points of his new theory. He prefaced his summary by stating:

> We started out by assuming the existence of a motivation to know that one's opinions are correct and to know precisely what one is and is not capable of doing. From this motivation, which is certainly non-social in character, we have made the following derivations about the conditions under which a social comparison process arises and about the nature of this social comparison process.
>
> 1. This social process arises when the evaluation of opinions or abilities is not feasible by testing directly in the environment.
>
> 2. Under such circumstances persons evaluate their opinions and abilities by comparison with others.
>
> 3. This comparison leads to pressure toward uniformity.
>
> 4. There is a tendency to stop comparing oneself with others who are divergent. This tendency increases if others are perceived as different from oneself in relevant dimensions.
>
> 5. Factors such as importance, relevance, and attraction to a group which affect the strength of the original motivation will affect the strength of the pressure towards conformity.
>
> (Festinger, 1954b, p. 217)

Since its origin, social comparison theory has been widely studied and expanded. Although Festinger believed the major goal of social comparison was accurate self-evaluation, subsequent work has identified other goals of the social comparative process such as self-improvement and self-enhancement. In addition, Festinger's original work emphasized the need for people's self-evaluations to be accurate and it is widely accepted today that individuals are biased in their self-evaluations, often for self-serving purposes (Taylor & Brown, 1988). These self-serving purposes are evidenced by the emphasis of research since the late 1970s on self-enhancement motives. Today's research questions in the social comparison field center around 1) how individuals make comparisons so as to achieve their goals and 2) under what circumstances do self-evaluation versus self-improvement versus self-enhancement goals dominate the social comparative process (Wood & Taylor, 1991).

Goals of Social Comparison

Three major goals have been identified for making social comparisons. They are self-evaluation, self-improvement, and self-enhancement. Self-evaluation goals are met by making comparisons which provide information about one's abilities. Festinger believed the most informative and accurate information could be obtained by comparison to a target similar to oneself. Subsequent work has demonstrated that comparisons to a similar other may not always be the most informative. A commonly sited example in the literature is that of subjects comparing test scores. When a subject knows his/her own test score, but not the range of test scores, the most informative information is knowing the highest and lowest scores, not that others have scored similarly (Friend & Gilbert, 1973; Wheeler, Shaver, Jones, Goethals, Cooper, Robinson, Gruder, & Butzine, 1969). Likewise, if one is unfamiliar with a skill or characteristic, comparisons to very different others may help exemplify the characteristic or skill being evaluated or define the range of possibilities and thus be very informative (Arrowood & Friend, 1969; Singer, 1966; Wheeler et al., 1969). In general, if one is familiar with the dimension under evaluation, one seems to make comparisons with similar others, but if one is unfamiliar with the dimension under evaluation, one seems to compare with dissimilar others.

When self-improvement is the goal of social comparison, this may be accomplished by comparing to others whom one perceives are better than the self on the dimension in question (upward comparison). Festinger's original theory stressed the "unidirectional drive upward". It is hypothesized that we can learn from others who are better than us on some dimension (Berger, 1977) and that comparing to others that are better my motivate and inspire us (Brickman & Bulman, 1977). Some researchers have found associations between upward comparisons and achievement motivation (Wheeler, 1966, Gastorf, Suls, & Sanders, 1980). Bandura's work (1986) which demonstrates that people can improve their own behavior or skills after exposure to a successful model offers evidence that upward comparison can lead to self-improvement.

Self-enhancement goals or feeling better about the self, may be reached by comparing to others whom one perceives are inferior or worse off than the self on the dimension in question (downward comparison) (Wood & Taylor, 1991). Research on downward comparison is extensive. Wills (1981) theorized that downward comparisons work by reminding a person who feels threatened on some dimension of how his/her circumstances might have been worse. If one can compare with a "worse off" other, he/she may feel less threatened (Taylor, Wood, & Lichtman, 1983). Not only may downward comparisons lessen the feeling of threat, they may also improve one's mood or enhance one's self-esteem (Affleck & Tennen, 1991; Crocker & Gallo, 1985; Gibbons, 1986; Morse & Gergen, 1970). When subjects are asked to rate themselves compared to other people on some dimension, individuals typically want to see themselves as better than others. This is commonly accomplished by rating themselves higher than others on any dimension that they perceive is desirable (Alicke,1985; Brown, 1986).

In summary, different types of comparisons may be useful for meeting different types of comparison goals. The comparisons that seem most useful for self-evaluation goals are those that provide the most information about one's own standing or rank on the dimension in question. For self-improvement goals, the most useful comparisons appear to be those that teach one how to perform better or that motivate one to perform better on the dimension in question (upward comparisons). Self-enhancement goals seem best met by comparisons that make one feel good about the self or about one's circumstances (Wood & Taylor, 1991).

Social Comparison Processes

Although Festinger originally proposed that self-evaluations would not be effective if not accurate, subsequent research has shown people often bias their self-evaluations for self-serving purposes (Taylor & Brown, 1988). In fact, current appraisals of social comparison theory blend the basic premises of Festinger's theory of cognitive

dissonance. That is, when one makes social comparisons, self-justification is often the key and so people will create cognitions to fit, and therefore justify their thoughts and actions (Goethals, Messick, & Allison, 1991). Goethals et al. summarize this enhanced theory of social comparison as follows:

> People will seek comparison information that is self-enhancing; they will avoid , if they can, comparison information that is threatening to self-esteem, and they will work actively on whatever social comparison information they receive to generate positive causal attributions explaining that information. (1991, p. 154).

Social comparisons then, can really be of two different types, realistic and "constructive." With realistic social comparison, individuals use and evaluate real (actual) information in making self-appraisals. Constructive social comparison involves constructing ("in the head") self-appraisals based upon guesses, or conjecture, or rationalization (Goethals et al., 1991). People tend to use the comparative process that is in their best interest and move easily from one to the other as needed. In general, realistic social comparisons are used to meet self-evaluation goals and constructive social comparisons are more often used to meet self-enhancement goals. "In the interests of self-enhancement people generate their own comparison information, ignore or distort real but threatening information, and make biased attributions about the causes of both their and other people's opinions and performances" (Goethals et al., 1991, p. 155).

Constructive Social Comparisons

The most basic process of constructive social comparison is making up consensus estimates regarding opinions and abilities. In general, people want to perceive their opinions as common and their abilities as unique (Marks, 1984). To accomplish this goal, they will tend to overestimate consensus for opinions and undesirable actions (failures) and underestimate consensus for moral/desirable actions and success (Goethals et al., 1991).

The False Consensus Effect in Consensus Estimates

One common bias in the constructive social comparison process is termed the false consensus effect. Ross, Green, and House (1977) described the false consensus effect as people's tendency to "see their own behavioral choices or judgments as relatively common and appropriate to existing circumstances while viewing alternative responses as uncommon, deviant, and inappropriate" (p.280). A meta-analysis of false consensus studies by Mullen et al. (1985) has demonstrated that this effect is very robust across a range of opinions and behaviors.

Directional Accuracy of Consensus Estimates

In terms of the accuracy of the false consensus, the consensus can be an overestimation or an underestimation of similarity. Individuals generally will give higher estimates of the proportion of their peers that believe and act as they do than do the people who do not. When values are attached to behavioral choices, the directional accuracy for those that perform the behavior (subscribers) varies. If the action is positively valued, those that perform the behavior tend to underestimate consensus whereas if the action is negatively valued, those that perform the action tend to overestimate consensus. Overestimating consensus can help a person feel one's actions or opinions are appropriate or correct. If a condition of threat is present, overestimating consensus for one's actions may help a person to perceive their actions as more common or ordinary and therefore less threatening or risky (Sherman, Presson, & Chassin, 1984). Underestimating consensus by persons who do perform a given behavior serves to provide a feeling of being special or unique. Underestimation of consensus by persons who do not perform the given behavior also may be self-enhancing in that it allows them to feel they are no worse off than most others (Goethals et al., 1991).

Mechanisms Underlying the False Consensus Effect

The literature is imbued with possible explanations for the false consensus effect or assumed similarity between self and others. A systematic review of the false consensus literature by Marks and Miller (1987) revealed four general theoretical perspectives, 1) selective exposure and cognitive availability, 2) salience and focus of attention, 3) causal attribution processes, and 4) motivational processes.

Selective Exposure and Cognitive Availability

The perspective of selective exposure and cognitive availability suggests that our ability to accuracy estimate consensus is related to the relevant information to which we have most ready access. Taylor and Fiske (1978) referred to this as a "top-of-the-head" phenomena. Because individuals commonly associate with similar others, they may error by making the assumption that their social group is representative of the larger public (McFarland & Miller, 1990). As they begin to make estimates of consensus, they draw from a biased and limited sample of information (Ross et al., 1977). Tversky and Kahneman (1973) state that an individual is employing the availability heuristic "whenever he estimates frequency or probability by the ease with which instances or associations could be brought to mind" (p. 208).

Sherman, Presson, Chassin, Corty, and Olshavsky (1983) in their study of the false consensus effect and estimates of smoking prevalence found a strong positive correlation between adolescents' and adults' estimates of smoking prevalence and the number of their friends who smoked. Additional support for the selective exposure theory was evidenced by the fact that estimates of smoking prevalence were smaller for nonsmokers who primarily socialized with other nonsmokers than for nonsmokers who socialized with both smokers and nonsmokers (Sherman et al., 1983). Wetzel and Walton (1985) studied consensus estimates of children ages 6 and 11 regarding

preferences for activities at a summer camp. They found same-aged children correctly perceived greater agreement on activity preference than did different-aged campers. Tabachnick, Crocker, and Alloy (1983) asked depressed and nondepressed college students (previously identified) to rate themselves and the "average college student" on a list of depression-relevant, nondepression-relevant, and depression-irrelevant items. For each item set, nondepressed subjects assumed more similarity to the "average college student" than did depressed subjects. Judd and Johnson (1981) examined the false consensus effect in college women on estimates of attitudes about feminism. They found that when the target group for comparison was friends, the woman overestimated consensus for their own attitudes. This overestimation was not found when the target group was adults or fellow undergraduates (Judd and Johnson, 1981). Holtz and Miller (1985) had members of on-campus fraternities and a group of campus commuters indicate opinions on several issues and estimate the positions for fellow commuters (in-group) and on-campus fraternities (out-group) or vice versa. Results indicated greater assumed similarity between in-group estimates than between in-group and out-group estimates (Holtz and Miller, 1985).

Salience and Focus of Attention

The theory of salience and focus of attention is similar to the selective exposure perspective in that access to a restricted body of information may lead to errors in consensus estimates. According to this perspective, an individual focuses on that which is most salient, his/her own position. If an individual is focused on one position (his/her own) and not on alternatives, this focus may augment consensus for their position as this is the only information in their immediate consciousness. Likewise, if one commits to a single position or action, that position or action becomes the focus of attention and alternative positions or actions are not salient or readily available in thought processes (Marks & Miller, 1977).

Causal Attribution Process

This perspective is based upon the thesis that individuals will tend to attribute the cause of their own behavior to situational (environmental) factors, rather than dispositional (personality) factors (Gilovich et al., 1983; Zuckerman & Mann, 1979). False consensus in this context occurs when individuals assume that situations will affect others in a similar manner to the self.

Zuckerman and Mann (1979) undertook a study which helped to lend credence to the causal attribution mechanism for false consensus effects. In their study, subjects were presented with a behavioral event and the factor that caused that event. In some instances the cause was attributed to the person, in other instances to the object of the event, and in other instances to the circumstances of the situation. Subjects were then asked the number of other people who enjoy the event as described. Perceived consensus was found to be greater when the cause of the event was attributed to the object or circumstances rather than the person. Gilovich et al. (1983) presented undergraduates with four dilemmas (hypothetical) and induced subjects into environmental or personal causes for their response choices. No false consensus effects were found for subjects who were induced to attribute the cause of their choice to personal dispositions, but false consensus effects were found for subjects who were led to attribute the cause of their choice to the environment (Gilovich et al., 1983). A study by Kulik, Sledge, and Mahler, (1986) found that college students who were introverts, but acted outgoing (inconsistent behavior), attributed the cause of their behavior to the situation. Those students who were extroverts and acted outgoing (consistent behavior) attributed their behavior to dispositional (personality) factors. Estimates of peer consensus for one's behavior were higher for those subjects classified as inconsistent than for those classified consistent (Kulik et al., 1986).

Motivational Processes

Motivational processes emphasize function. The positioning of the self in relation to others may serve the function of 1) enhancing perceived social support, 2) validating the correctness or appropriateness of an opinion or action, 3) enhancing or maintaining self-esteem, 4) keeping or restoring cognitive balance, and 5) reducing tensions or social interactions by augmenting similarity and therefore likability (Marks & Miller, 1977).

Need for social support is central to Festinger's original theory. It is widely noted that an individual's tendency to attribute his/her own position to others may be tied to needs for social support (Goethals et al., 1979; Holtz & Miller, 1985; Marks, 1984; Miller & Marks, 1982; Sanders & Mullen, 1983; Sherman et al., 1983; Wagner & Gerard, 1983). Overestimating consensus should provide a sense of security about the appropriateness of one's position. According to Marks & Miller (1987), individuals may be most concerned about their opinions in relation to others 1)when there is no clear cultural standard for evaluation or the standard is unclear, 2) when one's position is deviant, 3) when the issue has hedonic relevance, and 4) when an individual is uncertain about one's position.

Self-esteem maintenance is an important function of motivational processes. People can enhance their self-esteem through social comparisons in two main ways. One way is to perceive oneself as higher or better than the "average other" on some dimension of evaluation. Wills (1981) suggests that individuals are most likely to engage in downward comparisons when their self-esteem is low, or when their subjective well-being is threatened. Biased comparisons are therefore motivated by the need to restore self-esteem following threat.

The second way to enhance self-esteem through social comparison is to view one's positive characteristics or actions as rare (Campbell, 1986; Suls & Wan, 1987). Viewing one's positive attributes or actions as rare may be evidenced in consensus research by systematic underestimations of consensus and is termed the false uniqueness

effect (Perloff & Brickman, 1982). Previous studies have demonstrated that people feel better or superior to the average person in terms of being more intelligent (Wylie, 1979), more ethical (Baumhart, 1968), and less prejudiced (Lenihan, 1965). In relation to skills, false uniqueness effects have been demonstrated for driving skills (Slovic, Fischoff, & Lichtenstein, 1977) and coping skills (Taylor et al., 1983).

Up to this point, self-esteem has been conceptualized in very individualistic or personal terms. Tajfel (1981) and Tajfel and Turner (1979, 1986) contend that the self-concept has two distinct parts, the personal identity and the social identity. Personal identity reflects specific attributes of the individual. Social identity is defined as "that part of an individual's self-concept which derives from his knowledge of his membership in a social group (or groups) together with the value and emotional significance attached to that membership (Tajfel, 1981, p. 255). Accordingly, people may be motivated to maintain a positive social identity as well as a personal identity. One's social identity may be determined by the outcome of social comparisons between the individual's identified group (ingroup) and the outgroup (Luhtanen and Crocker, 1991). Thus, ingroup bias may work to enhance self-esteem. Crocker and Luhtanen (1990) and Lay (1992) have found that individuals who are high in collective self-esteem are more likely to respond to threats to collective self-esteem by enhancing the ingroup and derogating the outgroup. "Just as personal self-esteem has been shown to be an important moderator of the extent to which individuals engage in self-serving biases and self-enhancement, collective self-esteem will moderate the extent to which individuals will attempt to protect and enhance their collective identities" (Luhtanen & Crocker, 1992, p. 315).

Justifying and validating behaviors, especially those that may be viewed as deviant may be the most important function served through motivational processes (Sherman et al., 1983; Sherman et al., 1984). The more deviant the behavior the greater may be the need for an individual to perceive that behavioral action as prevalent and the greater the false consensus effect (overestimation) one would expect to find. This

principle was nicely illustrated in a study by Sherman et al. (1983) looking at estimates of smoking prevalence. Consensus estimates on smoking prevalence were gathered on middle school subjects as well as on adults. Because smoking is a more deviant behavior for someone in middle school than in adulthood, one would expect greater false consensus effects for middle school subjects. This was clearly the case (Sherman et al., 1983). In general, whenever one feels a threat to the self (failure, risk, deviance), this sense of threat may be mitigated by overestimating consensus for one's actions or position.

Religiosity and Ingroup Bias

Several studies have explored the impact of religious beliefs or membership in faith groups and ingroup bias. Cochran, Beeghley, and Bock (1992) conclude that religiosity does influence alcohol use and they predict it may have an impact on other areas, especially those areas where religious and secular norms are not clearly proscriptive on the behavior in question. Watson, Morris, Foster, and Hood (1986) researched the relationship between religiosity and social desirability. They found a positive correlation between religiosity and social desirability and concluded that that may reflect an attempt by religious persons to live according to the normative values of their belief system. In a study of religious groups and self-attention, Mullen (1984) found, "as the size of the congregation increases relative to the number of ministers, the members of the congregation may experience decreased levels of self-attention and thereby reduce active attempts to match the standards of appropriate behavior represented by participation in the group" (Mullen, 1984, p. 511). Sheeran, Abrams, Abraham, and Spears (1993) examined the association between different measures of religiosity, 1) religious upbringing, 2) denominational affiliation, 3) ritual/behavioral, 4) self-attitude/self-schema, and 5) salience of religious identity and sexual attitudes and behavior. Several interesting conclusions resulting from this study were, 1) individuals

brought up in Catholic or Protestant traditions had more conservative sexual standards for themselves and more negative judgments of sexually active others in outgroups, 2) self-attitude/self-schema conceptualization was the best predictor of sexual attitudes and sexual behavior, and 3) self-concept was central in the conceptualization of religiosity (Sheeran et al., 1993).

False Consensus Effects and Health Relevant Behaviors

Relatively few studies have examined false consensus effects relevant to health behaviors. Those studies that have been done are instructive. In 1988, Suls, Wan and Sanders examined consensus estimates for 12 habits or health care behaviors in a sample of 138 university students. The habits or behaviors studied included smoking behavior, drinking behavior, caffeine use, nonprescription drug use, marijuana use, snacking between meals, use of a safety belt, eating breakfast, and calling a physician when ill. Suls et al. hypothesized that students who had undesirable health practices would overestimate consensus for their behaviors and that students with desirable health practices would underestimate consensus for their behaviors. For 9 of 12 items, those students who had undesirable health behaviors did significantly overestimate consensus. Those students who had desirable behaviors significantly underestimated consensus for 6 of 12 behavioral items (Sul et al., 1988). The researchers concluded that respondents had a very poor idea of how many of their peers performed health-relevant behaviors and that it might be helpful in health campaigns to include actual data on those who do perform specific behaviors. In terms of risk assessment, the authors concluded that "inflation of real consensus may serve to reinforce practices and modes of conduct that increase the probability of illness and injury. A final implication is that if undesirable (health) behaviors are seen as common, people may minimize the amount of risk involved" (Suls et al., 1988, p. 77).

Sherman et al. (1983) studied the false consensus effect in estimates of smoking prevalence. They found a consistent false consensus effect for adolescents' estimations of smoking prevalence, but did not find false consensus effects for estimates of adult smoking behavior. They concluded the underlying mechanism for the false consensus findings may have been motivational. Since smoking behavior is perceived as less deviant for adults and more deviant for middle school children, one would predict weaker false consensus effects for the adult group (Sherman et al., 1983).

Factors Affecting the Measurement of False Consensus Effects

Two meta-analytic reviews of the false consensus (social projection) research (Mullen, Atkins, Champion, Edwards, Hardy, Story, and Vanderklok, 1985; Mullen & Hu, 1988) and a subsequent investigation by Mullen, Driskell, and Smith (1989) have provided important information on the effects of sequence of measurement and the wording on questions on estimates of consensus. The results of sequence of measurement and wording of the estimation question were consistent across both meta-analyses. First of all, the demonstration of the false consensus effect does not seem to be influenced by the generality of the reference group whose consensus is being sought (Mullen et al., 1985). Thus, whether the referent was labeled as peers, friends, or college students, did not significantly impact the findings of false consensus effects. Second, the significance and magnitude of false consensus effects does seem to be influenced by the number of items a subject answer. In general, the fewer the consensus items, the greater the expression of the false consensus effect. Third, the expression of false consensus effects is maximized when consensus estimates are gathered before information on actual behavioral choices (Mullen et al., 1985; Mullen & Hu, 1988). The practical implications of these findings were summarized by Mullen et al. (1985) as follows, "future research directed toward studying the determinants of the false consensus effect might better employ just a few behavioral choices and measure estimates of consensus before

behavioral choices (to maximize the expression of false consensus effects)" (Mullen et al., 1985, pp. 278-279).

Summary

Festinger's original theory of social comparison states that people have a drive to know whether their actions or opinions are appropriate or correct and that they evaluate their opinions or actions by comparisons to similar others. Over time, this original theory has been refined and expanded. Subsequent research in the field of social comparison has demonstrated that different types of social comparisons serve to meet different goals. It is evident that most social comparisons are self-serving in nature, often constructive, and rely on perceptual biases. The most common bias of social comparison, the false consensus effect, has been demonstrated across multiple domains and in numerous studies. Four general theoretical mechanisms have been identified to explain the false consensus effect and current research seeks to understand under what conditions each mechanism or a combination of mechanisms may be employed.

CHAPTER III: RESEARCH DESIGN AND METHODS

This study gathered consensus estimates of sexual behaviors of college students and attempted to determine the degree to which the accuracy of those estimates was influenced by motivational processes, in particular self-esteem maintenance and social support. The dependent variable under study was the accuracy of consensus estimates. The relationship of the accuracy of those consensus estimates with the independent measures of self-esteem, sexual esteem, collective self-esteem, and religiosity was analyzed. Additionally, the effect of demographic variables on accuracy of consensus estimates was examined.

Sampling

Subjects were drawn from selected classes qualifying as baccalaureate core classes at Oregon State University. Baccalaureate core classes are designated by the University to promote educational breadth in the arts and letters, social sciences, and science knowledge bases. An equal distribution of classes from the 100, 200, 300, and 400 levels were sampled. Class selection was based upon the following criteria: 1) instructor consent, 2) class level (100, 200, 300, 400), and 3) baccalaureate core designation at Oregon State University.

Survey Instrument

Data was collected through the use of a questionnaire designed by the researcher and incorporated four existing scales. Existing scales included the Self-Esteem Scale (SES) (Rosenberg, 1965), the Sexuality Scale (SS) (Snell & Papini, 1989; Wiederman & Allgeier, 1993), the Collective Self-Esteem Scale Revised (CSES-R) (Luhtanen & Crocker,

1992) and the Scale of Attitude Towards Christianity (Francis & Stubbs, 1987; Francis, 1989).

The Self-Esteem Scale is a well-established measure of global self-esteem and has been used extensively with various age groups including college students. The SES consists of 10 items and is recognized for its brevity and ease of administration. It has a reported alpha of .88 (Blascovich & Tomaka, 1991).

The Sexuality Scale was developed to assess what a person thinks and how one feels about his/her own sexuality (Snell & Papini, 1989). The SS consists of three subscales measuring the constructs of sexual-esteem, sexual-depression, and sexual-preoccupation with reported alphas of .89 to .96. Sexual-esteem is defined by the authors as "a positive regard for, and confidence in, the capacity to experience one's sexuality in a satisfying and enjoyable way." Sexual depression is conceptualized as "a tendency to feel saddened and discouraged about one's capability to relate sexually to another individual," and sexual- preoccupation is referred to as " the persistent tendency to become so absorbed in, obsessed with, and engrossed in sexual cognitions and behaviors, that one virtually excludes thoughts of other matters" (Wiederman & Allgeier, 1991, pp. 88-89). The Sexuality Scale (short form) consists of 12 items scored on a 5-point Likert scale and was developed and tested on college students.

The Collective Self-Esteem Scale-R is a measure of social identity. Social identity or collective self-esteem is defined by Tajfel as " that part of an individual's self-concept which derives from his knowledge of his membership in a social group (or groups) together with the value and emotional significance attached to that membership" (1981, p. 255). The CSES-R is a 16 item scale with four identified subscales: 1) membership, 2) private, 3) public, and 4) identity. Reported Cronbach alpha for the CSES-R was .88. The membership esteem subscale identifies personal perceptions of worthiness to be a member of a social group while the private collective esteem subscale evaluates perceptions of how good or worthy one's social group is. How other people view or evaluate one's

social group is measured via the public collective esteem subscale and the identity collective esteem scale assesses the importance of membership in a social group to one's self-concept (Luhtanen & Crocker, 1992).

Francis Scale of Attitude Towards Christianity (Francis & Stubbs, 1987; Francis 1989) was used to measure the religiosity dimension. This 24-item Likert scale has a reported alpha coefficient of .95. In addition to the aforementioned scales, questions were designed by the researcher to gather information on consensus estimates regarding sexual behaviors as well as demographic information. A copy of the complete survey instrument may be found in Appendix A.

Data Collection

Following pilot testing of the instrument, any necessary adjustments in wording or design were made. Instructors of baccalaureate core courses from the 100, 200, 300, and 400 levels at Oregon State University were contacted and permission asked to administer the questionnaire during a regular class time during Fall Term 1994. The questionnaire was estimated to take 20 minutes to complete. Permission was granted to administer the survey in 16 different baccalaureate core classes. During one of the first three days of classes, Fall Term 1994, the questionnaire and cover letter were distributed to all willing participants by the researcher and completed questionnaires were collected at the end of the class period. Anonymity was guaranteed to all participants.

Data Analysis

Quantitative data compiled for this study were derived from the respondent information provided on the survey instrument. Data analysis was completed using the Statview (4.0) statistical package. False consensus effects were calculated for each of the 12 behavioral items as well as the directional accuracy of those consensus estimates.

Pearson Product Moment Correlations were computed to determine the strength and direction of the relationship between the accuracy of consensus estimates on the 12 behavioral items and the total scale scores for self-esteem and religiosity, and the total scale scores and subscale scores for sexuality and collective self-esteem. Analysis techniques used to further describe the data included one-way analysis of variance and multi-linear stepwise regression. An alpha level of .05 was the basis for determining significance.

CHAPTER IV: ANALYSIS AND INTERPRETATION OF DATA

Introduction

The purpose of this study was three fold: 1) to determine if false consensus effects would be found for estimates of sexual behaviors, 2) to determine the directional accuracy of consensus estimates for subscribers and nonsubscribers and 3) to determine if the degree of accuracy of those estimates was influenced by self-esteem, sexual esteem, collective self-esteem, and religiosity. Through the use of a questionnaire, consensus estimates were gathered for twelve sexual behavior items. False consensus effects were found for all twelve behavioral items and further analysis was done to determine the directional accuracy of the estimates as well as to determine what motivational factors might influence the degree of accuracy of the consensus estimates. The specific motivational factors examined were self-esteem, sexual esteem, collective self-esteem, and religiosity. These four factors were measured using the following scales: 1) the Self-Esteem Scale (SES) (Rosenberg, 1965), 2) the Sexuality Scale (SS) (Snell & Papini, 1989; Wiederman & Allgeier, 1993), 3) the Collective Self-Esteem Scale Revised (CSES-R) (Luhtanen & Crocker, 1992) and 4) the Scale of Attitude Towards Christianity (Francis & Stubbs, 1987; Francis, 1989). Following a description of the survey sample, the statistical results of hypotheses testing are presented. The level of significance for hypothesis testing was set at $p<.05$.

Results: Description of the Survey Sample

The sample for this study was drawn from 100, 200, 300, and 400 level classes qualifying as baccalaureate core classes at Oregon State University during the Fall Term of 1994. Class selection was based upon the following criteria: 1) instructor consent, 2) class level (100, 200, 300, 400), and 3) baccalaureate core designation. Baccalaureate

core classes are designated by the University to promote educational breadth in the arts and letters, social sciences, and science knowledge bases. A listing of classes surveyed may be found in Table 1. Surveys were administered in a total of 16 classes and 840 surveys were returned. This represented a 91% participation rate. Nineteen of the surveys that were returned were incomplete and were not included in the data analysis. Thus, the total sample consisted of 821 subjects.

Table 1: Classes Surveyed

Class Surveyed	Surveys Returned	Cumulative Totals/Level
1. Political Science 101	47	47
2. Political Science 101	43	90
3. Political Science 102	44	134
4. History 101	56	190
5. Sociology 204	99	99
6. Sociology 204	96	195
7. Philosophy 205	38	233
8. Philosophy 205	36	269
9. History 381	20	20
10. Health 386	74	94
11. Geography 300	72	168
12. Geography 300	42	210
13. HDFS 471	42	42
14. Philosophy 444	49	91
15. Sociology 456	46	137
16. Anthropology 487	34	171

The study subjects ranged in age from 17 to 55 with a mean age of 22 years . Males represented 43% of the sample and females made up the remaining 57%. Eighty-

one percent of the respondents indicated they were single/never married, 7% were cohabiting with a live-in intimate partner, 11% were married, and <2% indicated they were divorced. The sample was primarily Caucasian (82%). Ten percent of the respondents were Asian Americans and other ethnic groups combined represented 8% of the sample. Most subjects lived off campus (56%). Twenty three percent of the respondents lived in residence halls, 7% lived in fraternity housing, and 8% lived in sorority housing.

When subjects were asked about their religious beliefs, 14% of the respondents indicated they did not believe in any higher power, spirit, or being. Forty-four percent of subjects indicated that they believed in a higher power, spirit, or being, but did not worship or witness with others and 42% of subjects indicated that they believed in a higher power, spirit, or being and identified with an organized religious group. Subjects identified 26 different organized religious groups. Of those identifying an organized religious group, 30% responded as Catholic. Another 26% of the subjects who responded to this item indicated they were Christian, but did not identify a specific religious organization. No other specified religious group represented >8% of the responses.

Subject's level of evangelicalism was determined by their combined responses to three demographic items used previously in the Gallup Poll (Lupfer, Brock, & DePaola, 1992). Participants were asked about their feelings about the Bible, if they had ever tried to encourage someone to believe or to accept Jesus Christ as their savior, and if they had ever had a born-again experience. Twenty percent of the sample scored high on evangelicalism, 21% scored medium, and 59% of the subjects scored low on evangelicalism.

The basic demographic profile of the sample compared favorably with the demographic profile of the O.S.U. general student population. The O.S. U. student body was reported by the Office of Student Affairs as being 57% male, 43% female, and 73.4% Caucasian. In terms of residence, 68% of O.S.U. students lived off campus, 18.2% lived

in residence halls, 7.2% lived in fraternity housing, and 4.2% lived in sorority housing. A complete summary of demographic data may be found in Appendix B. A summary of subjects reported sexual behaviors can be found in Appendix C.

Results of Hypothesis Testing

Consensus estimates used in the statistical analysis of this study were collected on twelve sexual behaviors using the questions listed below. Item subscribers are defined as those subjects who responded affirmatively (yes) to the sexual behavior item. Nonsubscribers are defined as those subjects who responded negatively (no) to the sexual behavior item.

Consensus Questions

The consensus questions utilized in this study were:

(Y1) What percent of your friends has been sexually active (vaginal intercourse, anal intercourse, or oral sex)?

(Y2) What percent of your friends has been sexually active (vaginal intercourse, anal intercourse, or oral sex) in the past year?

(Y3) What percent of your friends has had vaginal intercourse?

(Y4) What percent of your friends always use a condom during vaginal intercourse?

(Y5) What percent of your friends has had anal intercourse?

(Y6) What percent of your friends always use a condom during anal intercourse?

(Y7) What percent of your friends has had oral sex?

(Y8) What percent of your friends always use a protective barrier (condom, dental dam or other latex barrier) during oral sex?

(Y9) What percent of your friends has had unprotected sex with someone after having too much to drink?

(Y10) What percent of your friends has been sexually active with a new partner without first asking about that person's past sexual history?

(Y11) What percent of your friends has been less than truthful with a new partner about his/her past sexual history?

(Y12) What percent of your friends engage in risky sexual behaviors?

Hypothesis #1: There will be no significant false consensus effects for sexual behaviors.

The expectation that item subscribers will make higher estimates of consensus than nonsubscribers represents the false consensus effect. Consensus estimates for twelve sexual behaviors were collected using the questions stated in the previous section. False consensus effects were determined by testing the hypothesis that the mean of the consensus estimates of those subjects who did participate in the given behavior (subscribers) minus the mean of the consensus estimates of those subjects who did not participate in the given behavior (nonsubscribers) would be greater than or equal to zero.

Highly significant ($p \leq .0001$) false consensus effects were found for 11 of the 12 sexual behaviors. The false consensus effect for item Y6, anal intercourse and condom use, was also significant , but at the $p \leq .01$ level. Hypothesis #1 was rejected as significant false consensus effects were found for all sexual behaviors. This indicates that the mean estimation of those college students who said they had participated in the described behavior minus the mean estimation of those college students who reported they had not participated in the described behavior was greater than or equal to zero in all cases. Table 2 provides a summary of t-values.

Table 2: False Consensus Effects for Sexual Behaviors

Behavior	Pop. Est.	Do Est.	Do Not Est.	t-value	p-value
Y1	81.75	77.92	52.44	-10.42	0.0001
Y2	90.53	75.12	61.02	-3.97	0.0001
Y3	93.79	78.06	57.40	-4.48	0.0001
Y4	23.32	67.76	46.89	-7.44	0.0001
Y5	15.20	25.61	6.54	-10.85	0.0001
Y6	17.92	45.63	26.20	-2.15	0.0169
Y7	93.76	72.18	41.53	-5.71	0.0001
Y8	2.28	57.31	11.81	-7.17	0.0001
Y9	48.52	52.51	25.15	-11.15	0.0001
Y10	47.78	60.17	32.90	-10.62	0.0001
Y11	24.38	52.07	28.98	-7.96	0.0001
Y12	26.61	53.98	27.74	-9.84	0.0001

Hypothesis #2: Subscribers and nonsubscribers will not accurately estimate consensus for sexual behaviors.

The finding of false consensus effects confirms the expectation that item subscribers will make higher estimations of consensus than nonsubscribers. This finding does not, however, determine the degree to which subjects were accurate in judging the proportion of their friends who behave in the same way. For example, a student who always uses a condom during vaginal intercourse (subscriber) my see their behavior as more common than a student who does not use a condom during vaginal intercourse (nonsubscriber), but the subscriber's (condom user's) estimate could be an overestimation or an underestimation of the actual population figures for his behavior.

To determine the accuracy of consensus estimates, a directional error score was computed for each subject. The difference was computed for subscribers and nonsubscribers between the subject's consensus estimate and the actual percentage of

subjects in the survey who reported behaving in the same way as the subject (fellow subscribers).

An **underestimation for subscribers** indicated that the mean of subject's consensus estimates for a behavior was **lower** than the mean of the actual percent of subjects who reported subscribing to that behavior. An **underestimation for nonsubscribers** indicated the mean of the subject's consensus estimates was **lower** than the mean of the actual percent of subjects who did not subscribe to the behavior.

An **overestimation for subscribers** indicated the mean of the subject's consensus estimates was **greater** than the mean of the actual percentage of subjects who reported subscribing to the behavior. An **overestimation for nonsubscribers** indicated the mean of the subject's consensus estimates was **greater** than the mean of the actual percent of subjects who did not subscribe to the behavior.

The hypothesis that subscribers and nonsubscribers will not accurately estimate consensus for sexual behaviors was not rejected for all behavioral items except Y6 (anal intercourse and condom use). Subscribers did accurately estimate consensus for this item. Table 3 summarizes the accuracy of consensus estimates for subscribers and nonsubscribers.

Table 3: Directional Accuracy of Consensus Estimates for Subscribers and Nonsubscribers

	t-value	Subscribers	t-value	Nonsubscribers
Y1, Sexually Active	-7.32	Underestimation ***	-10.62	Underestimation ***
Y2, Active Past Year	-16.69	Underestimation ***	-7.05	Underestimation ***
Y3, Vag. Intercourse	-15.54	Underestimation ***	-6.44	Underestimation ***
Y4, Vag. Inter./Condom	16.32	Overestimation ***	21.65	Overestimation ***
Y5, Anal Intercourse	2.32	Overestimation *	-7.83	Underestimation ***
Y6, Anal Inter./Condom	0.00	Not Significant	9.68	Overestimation ***
Y7, Oral Sex	-17.53	Underestimation ***	-9.32	Underestimation ***
Y8, Oral Sex/Barrier	5.03	Overestimation ***	11.00	Overestimation ***
Y9, Sex After Drinking	-2.15	Underestimation *	-9.93	Underestimation ***
Y10, New-No Ask Past	2.31	Overestimation **	-3.75	Underestimation ***
Y11, New-No Truth Past	8.21	Overestimation ***	7.52	Overestimation ***
Y12, Risky Sex	7.97	Overestimation ***	5.83	Overestimation ***

* = p<.05 ** = p<.o1 *** = p<.001

Hypothesis #3: There will be no significant association between accuracy of consensus estimates and self-esteem scores.

Correlation coefficients were computed between the accuracy of consensus estimates for each sexual behavior and subjects' self-esteem scale scores to assess for any linear associations. No significant linear associations were found between accuracy of consensus estimates and self-esteem scores on any item.

To test for nonlinear associations between accuracy of consensus estimates and self-esteem, self-esteem scale scores were broken down into quartiles and one-way analysis of variance was used to test for differences in means. Significance level for

Anova testing was set at $p<.05$. There was no significant difference between the degree of accuracy of consensus estimates and the quartile subjects fell into for any behavioral item. Hypothesis #3 (accuracy and self-esteem) was not rejected. Refer to Appendix D for ANOVA summary tables.

Hypothesis #4: There will be no significant association between accuracy of consensus estimates and sexuality scale scores.

Correlation coefficients were computed between accuracy of consensus estimates for each sexual behavior and subjects sexuality scale scores to assess for any linear associations. No significant linear associations were found between accuracy of consensus estimates and sexuality scale scores on any behavioral item. The three subscales of the sexuality scale (preoccupation, depression and esteem) were also tested for significant linear associations and none were found.

To test for nonlinear associations between the degree of accuracy of consensus estimates and sexuality scale scores, sexuality scale scores were broken down into quartiles and one-way analysis of variance was used to test for differences in means. Significance level for Anova testing was set at $p<.05$. A significant difference was found between the quartile a subject was in and the degree of accuracy of consensus estimates for items Y7 (oral sex), Y9 (unprotected sex after drinking), Y10 (no ask sexual history), Y11 (lied about sexual history), and Y12 (risky sexual behavior). Table 4 reports quartile means and f-values for the sexuality scale.

Table 4: Quartile Means and F-values for Sexuality Scale

	Q1 mean	Q2 mean	Q3 mean	Q4 mean	f-value	p-value
Y7	-24.29	-20.27	-13.29	-14.69	3.04	.0286
Y9	-23.27	-13.63	-7.95	-.43	11.40	<.0001
Y10	-13.86	-5.84	1.39	2.11	6.25	.0004
Y11	-44.66	-31.12	-21.96	-19.15	9.68	<.0001
Y12	-38.20	-29.39	-18.09	-19.45	6.70	.0002

Further analysis of variance testing was completed on quartiles of each subscale of the sexuality scale. The first subscale analyzed was sexual depression. Significance level for Anova testing was set at $p<.05$. There were significant differences between the quartile a subject was in and the degree of accuracy for behavioral items Y2 (sex past year), Y4 (vaginal intercourse and condom use), Y10 (no ask sexual history), and Y11 (lied about sexual history). Quartile means and f-values for the sexual depression subscale are summarized in Table 5.

Table 5: Quartile Means and F-values for Sexual Depression Subscale

	Q1 mean	Q2 mean	Q3 mean	Q4 mean	f-value	p-value
Y2	-7.84	-15.93	-8.06	-2.09	4.44	.0042
Y4	-22.14	-14.06	-4.44	-7.02	5.39	.0012
Y10	-9.24	-6.93	.02	1.61	3.18	.0236
Y11	-32.74	-33.93	-24.75	-21.36	2.66	.0474

The second subscale, sexual preoccupation was tested in the same manner. There were significant differences between the quartile a subject fell into and degree of accuracy of consensus estimates for behavioral items Y9 (unprotected sex after drinking), Y10 (no

ask sexual history), Y11 (lied about sexual history), and Y 12 (risky sexual behavior). Quartile means and f-values for the sexual preoccupation subscale are reported in Table 6.

Table 6: Quartile Means and F-values for Sexual Preoccupation Subscale

	Q1 mean	Q2 mean	Q3 mean	Q4 mean	f-value	p-value
Y9	-17.55	-13.24	-8.63	-3.73	4.80	.0026
Y10	-10.07	-5.00	-.75	-3.09	3.94	.0084
Y11	-36.21	-33.59	-19.99	-21.09	5.30	.0013
Y12	-35.91	-26.06	-21.88	-18.19	4.86	.0024

When testing the third subscale, sexual esteem, a significant relationship was found for behavioral item Y4 (vaginal intercourse and condom use). The mean for Y4, Q1 was -2.81, the mean for Q2 was -11.87, the mean for Q3 was -14.85, and the mean for Q4 was -18.80, ($F(3, 562)=3.13$).

Based on these findings, hypothesis #4 (accuracy and sexuality) was rejected for behavioral items Y2 (sex past year), Y4 (vaginal intercourse and condom use), Y7 (oral sex), Y9 (unprotected sex after drinking), Y10 (no ask sexual history), Y11 (lied about sexual history), and Y12 (risky sexual behavior). Hypothesis #4 was not rejected for behavioral items Y1 (sex ever), Y3 (vaginal intercourse), Y5 (anal intercourse), Y6 (anal intercourse and condom use), and Y8 (oral sex and barrier use). Refer to Appendix D for ANOVA summary tables.

Hypothesis #5: There will be no significant association between accuracy of consensus estimates and collective self-esteem scores.

Correlation coefficients were computed between accuracy of consensus estimates for each sexual behavior and subjects' collective self-esteem scores to assess for any

linear associations. No significant linear associations were found between accuracy of consensus estimates and collective self-esteem scores on any behavioral item. Four previously described subscales of the collective self-esteem scale (membership, private, public, and identity) were also tested for significant linear associations and none were found.

To test for nonlinear associations between accuracy of consensus estimates and collective self-esteem scores, collective self-esteem scores were broken down into quartiles and one-way analysis of variance was used to test for differences in means. Significance level for Anova testing was set at $p<.05$. There was a significant difference between the quartile a subject was in and the degree of accuracy of consensus estimates for behavioral item Y12 (risky sexual behavior). For Y12, the mean for Q1 was -16.92, the mean for Q2 was -23.95, the mean for Q3 was -31.48, and the mean for Q4 was -29.59, ($F(3, 568)=3.15$).

As with the sexuality scale, further analysis of variance testing was completed on quartiles of each subscale of the collective self-esteem scale. The subscales analyzed were 1) membership, 2) private, 3) public, and 4) identity. Significance level for Anova testing was set at $p<.05$. No significant differences were found for the membership subscale. An analysis of the private subscale indicated a significant difference for item Y10 (no ask sexual history) and Y12 (risky sexual behavior). Mean values for Y10 were 2.33 for Q1, -4.86 for Q2, and -6.71 for Q3, ($F(2, 595) = 3.22$). For Y12, the mean for Q1 was -16.24, the mean for Q2 was -27.72, and the mean for Q3 was -29.49, ($F(2, 594) = 4.70$).

For the public subscale, a significant difference was found for items Y5 (anal intercourse), Y8 (oral sex and barrier use), and Y9 (unprotected sex after drinking). Table 7 reports quartile means and f-values for this subscale.

Table 7: Quartile Means and F-values for CSE Public Subscale

	Q1 mean	Q2 mean	Q3 mean	Q4 mean	f-value	p-value
Y5	-68.26	-58.93	-69.16	-65.51	2.84	.0371
Y8	-78.95	-85.02	-78.21	-87.92	3.00	.0298
Y9	-10.97	-11.94	-6.28	-14.82	3.03	.0490

An analysis of the final subscale, identity, indicated a significant difference between the quartile a subject fell into and the degree of accuracy of consensus estimate for behavioral items Y2 (sex past year), Y3 (vaginal intercourse), Y7 (oral sex), and Y12 (risky sexual behavior). Table 8 reports quartile means and f-values for this subscale.

Table 8: Quartile Means and F-values for CSE Identity Subscale

	Q1 mean	Q2 mean	Q3 mean	Q4 mean	f-value	p-value
Y2	-3.62	-12.34	-8.07	-12.85	2.93	.0328
Y3	-5.41	-16.79	-12.44	-12.28	3.55	.0144
Y7	-11.55	-21.79	-16.75	-22.26	3.31	.0198
Y12	-19.12	-24.90	-28.56	-32.73	2.73	.0432

Hypothesis # 5 (accuracy and collective self-esteem) was rejected for behavioral items Y2 (sex past year), Y3 (vaginal intercourse), Y5 (anal intercourse), Y7 (oral sex), Y8 (oral sex and barrier use), Y9 (unprotected sex after drinking), Y10 (no ask sexual history), and Y12 (risky sexual behavior). The hypothesis was not rejected for behavioral items Y1 (sex ever), Y4 (vaginal intercourse and condom use), Y6 (anal intercourse and condom use), and Y11 (lied about sexual history). Refer to Appendix D for ANOVA summary tables.

Hypothesis #6: There will be no significant association between accuracy of consensus estimates and religiosity scores.

Correlation coefficients were computed between accuracy of consensus estimates for each sexual behavior and subjects religiosity scores to assess for any linear associations. No significant linear associations were found between accuracy of consensus estimates and religiosity scores for any behavioral item.

To test for nonlinear associations between accuracy of consensus estimates and religiosity scores, religiosity scores were broken down into quartiles and one-way analysis of variance was used to test for differences in means. Significance level for Anova testing was set at $p<.05$. Significant differences were found between the quartile a subject was in and the degree of accuracy of consensus estimates for behavioral items Y4 (vaginal intercourse and condom use) and Y6 (anal intercourse and condom use). For Y4, the mean of Q1 was -6.06, the mean for Q2 was -6.99, the mean for Q3 was -12. 47, and the mean for Q4 was -25.73, ($F (3, 539) = 5.39$). For behavioral item Y6, the mean for Q1 was -26.83, the mean for Q2 was -33.36, the mean for Q3 was -54.41, and the mean for Q4 was -65.23, ($F (3, 99) = 3.53$).

Hypothesis #6 (accuracy and religiosity) was rejected for behavioral items Y4 (vaginal intercourse and condom use) and Y6 (anal intercourse and condom use). The hypothesis was not rejected for behavioral items Y1 (sex ever), Y2 (sex past year), Y3 (vaginal intercourse), Y5 (anal intercourse), Y7 (oral sex), Y8 (oral sex and barrier use), Y9 (unprotected sex after drinking), Y10 (no ask sexual history), Y11 (lied about sexual history), and Y12 (risky sexual behavior). Refer to Appendix D for ANOVA summary tables. Table 9 provides a summary of scales and subscales that were significantly associated with accuracy of consensus estimates for each of the twelve behavioral items.

Table 9: Significance of Scale Scores on Accuracy of Consensus Estimates

	Ho#3	Ho#4	Ho#4	Ho#4	Ho#4	Ho#5	Ho#5	Ho#5	Ho#5	Ho#5	Ho#6
	SE	SEX	SEX dep	SEX preoc	SEX est	CSE	CSE mem	CSE priv	CSE pub	CSE ident	REL
Y1											
Y2			x							x	
Y3										x	
Y4			x		x						x
Y5									x		
Y6											x
Y7		x								x	
Y8									x		
Y9		x		x					x		
Y10		x	x	x				x			
Y11		x	x	x							
Y12		x		x		x		x		x	

Hypothesis #7: There will be no significant relationship between the following variables (age, gender, marital status, ethnic identity, student classification, religious affiliation, place of residence, evangelicalism, and partner gender) and accuracy of consensus estimates.

To test for significant relationships between the demographic variables and accuracy of consensus estimates, one-way analysis of variance was utilized. Table 10 reports those results that were significant at $p<.05$. Refer to Appendix E for ANOVA summary tables.

Table 10: Significance of Demographic Variables to Consensus Accuracy

	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Age	.0017	ns	.0083	<.0001	.0083	ns	.0012
Gender	.0259	ns	ns	ns	ns	.0331	ns
Marital Status	<.0001	<.0001	.0096	<.0001	.0153	ns	<.0001
Ethnic Identity	ns	ns	ns	ns	ns	ns	ns
Student Class	.0351	ns	ns	ns	ns	ns	ns
Religion Group	ns	ns	ns	.0049	ns	ns	ns
Place of Residence	ns	ns	.0427	<.0001	ns	ns	.0092
Evangel. Rating	ns	ns	.0228	.0022	ns	.0496	.0222
Partner Gender	<.0001	.0002	ns	ns	.0030	ns	ns

Table 10: Significance of Demographic Variables to Consensus Accuracy, continued

	Y8	Y9	Y10	Y11	Y12
Age	ns	ns	.0124	.0179	.0398
Gender	ns	<.0001	<.0001	<.0001	.0107
Marital Status	ns	ns	.0043	.0447	.0002
Ethnic Identity	<.0001	ns	ns	ns	.0188
Student Class	.0131	ns	ns	ns	ns
Religion Group	ns	.0263	ns	.0495	ns
Place of Residence	ns	.0050	.0008	.0162	ns
Evangel. Rating	ns	ns	ns	ns	ns
Partner Gender	ns	<.0001	<.0001	.0002	.0232

Multi-linear Stepwise Regression Results

Multi-linear stepwise regression analyses were performed in order to determine if any of the measured variables were significant predictors of the accuracy of consensus estimates for the seven sexual behaviors that had clearly identified as desirable/ undesirable outcomes (Y4, Y6, Y8, Y9, Y10, Y11, Y12). All independent scale and subscale variables were entered in the multi-linear stepwise regression analysis. Demographic variables entered into the stepwise regressions included: age, gender, evangelicalism, sexually active/not, married/not, believer/not, Catholic/not, and born again/not. The model of best fit for each of the seven sexual behaviors is described below. Although all models are statistically significant, the substantive significance of most models was weak at best.

The variable that was found to be a significant predictor of Y4, always using a condom during vaginal intercourse was marital status (married/not). Being married had an inverse relationship (-.404) to Y4 and accounted for 15.9% of the total variance.

The variables that were found to be significant predictors of Y6, always using a condom during anal intercourse, were evangelicalism and gender. This regression model explained 18.6% of the total variance. Being male had a correlation value of .375 and a Beta weight of .302. Evangelicalism was inversely related to accuracy of consensus estimates in this model with a correlation value of -.377 and a Beta weight of -.304.

For sexual behavior Y8, always using a barrier during oral sex, the significant predictor was believing in a higher power, spirit or being. This stepwise regression model accounted for 6.9% of the total variance. Believing in a higher power, spirit, or being had an inverse relationship (-.271) with Y8.

The regression model best predicting Y9, having unprotected sex after having too much to drink, included the independent variables of sexuality scale, married/not, and believe/not. This model accounted for 12.6% of the variance. Being married (correlation value -.186, Beta weight -.182) was inversely related to accuracy of consensus estimates.

Identifying as a believer had a correlation value of .078 and a Beta weight of .134. Sexuality scale had a correlation value of .298 and a Beta weight of .309.

The model of best fit for Y10, having sex with a new partner without first asking about that person's sexual history, accounted for 12.1% of the total variance and included the independent variables sexuality depression subscale, married/not, and gender. Being married was inversely related with a Beta weight of -.215 and a correlation value of -.233. Sexuality depression subscale had a correlation value of .198 and a Beta weight of .172 and being male had a correlation value of .211 and a Beta weight of .224.

Stepwise regression analysis for Y11, having been less than truthful with a new partner about your past sexual history, explained 9% of the total variance and included sexuality depression subscale, gender, and married/not. Being married (correlation value -.167, Beta weight -.157) was inversely related to accuracy of consensus estimates. Being male had a correlation value of .229 and a Beta weight of .239 and the sexuality depression subscale had a correlation value of .149 and a Beta weight of .132.

The final dependent variable, Y12, engaging in risky sexual behaviors, was best predicted by the sexuality scale and marital status. This regression model accounted for 8.5% of the total variance. Being married was inversely related (correlation value -.242, Beta weight -.234) and the sexuality scale had a correlation value of .195 and a Beta weight of .184.

A Summary of the Findings

On the basis of the research findings, hypothesis #1 (false consensus effects) was rejected across all twelve behavioral items. Hypothesis #2 (accuracy of consensus estimates) was not rejected for all behavioral items except Y6 (anal intercourse and condom use) for subscribers. The results of hypothesis testing for hypothesis #3 (accuracy and self-esteem), hypothesis #4 (accuracy and sexuality), hypothesis #5 (accuracy and collective self-esteem), and hypothesis #6 (accuracy and religiosity) were

varied for each behavioral item. A summary of the finding for these hypotheses can be found in Table 9. Hypothesis #7 (accuracy and demographics) was rejected as one or more demographic variables was significantly related to the accuracy of consensus estimates for each of the behavioral items.

Multi-linear stepwise regression analyses were performed on each of the seven behavioral items that had clearly identified desirable/undesirable outcomes to determine which factors contributed significantly to the accuracy of consensus estimates. Although all models were statistically significant, the substantive significance of most models was weak at best. Four of the seven regression models included a scale or subscale variable as a significant predicator of accuracy of consensus.

CHAPTER V: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The results of this study have provided information concerning the false consensus effect, a bias of social comparison, on estimates of consensus for sexual behaviors. Furthermore, the study explored the directional accuracy of those consensus estimates and a motivational theory to explain the false consensus effects. A summary of the research, a discussion of research findings, and recommendations for future research are presented in this chapter.

Summary of the Research

Purpose

The purpose of this study was three fold: 1) to determine if false consensus effects would be found for estimates of sexual behaviors, 2) to determine the directional accuracy of consensus estimates for subscribers and nonsubscribers and 3) to determine if the degree of accuracy of those estimates was influenced by self-esteem, sexual esteem, collective self-esteem, and religiosity.

Research Design

Eight hundred and twenty one subjects were drawn from 100, 200, 300, and 400 level classes which qualified as baccalaureate core classes at Oregon State University during Fall Term of 1994. Surveys were administered to subjects during a regular class time and were collected during the same class period. The data from the surveys was coded and entered into a computer program. Statistical analysis was completed to test the seven stated hypotheses. On the basis of the research findings, Hypothesis # 1 was

rejected across all twelve behavioral items. Hypothesis #2 was not rejected for all behavioral items except Y6 (anal intercourse and condom use) for subscribers. The results of hypothesis testing for hypotheses #3 through #6 were varied for each behavioral item. Refer to Table 9 for a summary of the findings for hypotheses #3, #4, #5, and #6 . Hypothesis #7 was rejected as one or more demographic variables was significantly related to the accuracy of consensus estimates for each of the behavioral items. Refer to Table 10 for a summary of significance for demographic variables relative to each behavioral item.

Discussion of Research Findings

The first two sections of this discussion will focus on findings regarding false consensus effects and the directional accuracy of consensus estimates for subscribers and nonsubscribers. The next twelve sections of this discussion correspond to the twelve sexual behavior questions from which consensus estimates were gathered and discuss the findings in relation to the influence of self-esteem, sexual esteem, collective self-esteem, religiosity, and demographic variables and the degree of accuracy of consensus estimates.

False Consensus Effects

The expectation that item subscribers will make higher estimates of consensus than item nonsubscribers represents the false consensus effect. This bias of social comparison theory has been studied extensively and the effect reproduced in literally hundreds of studies across varied behavioral and attitudinal domains (Marks et al., 1985: Marks & Miller, 1987). The findings of this study supported previous research in that significant false consensus effects were found for all 12 sexual behavior items. Eleven of the 12 sexual behavior items were found to be significant at p=.0001 and the remaining item was significant at p=.01. Refer to Table 2 for a summary of t-values.

Accuracy of Consensus Estimates for Subscribers and Nonsubscribers

Consensus estimates may represent an underestimation or overestimation of consensus. For example, a student who always uses a condom during vaginal intercourse (subscriber) may see his/her behavior as more common than a student who does not use a condom during vaginal intercourse (nonsubscriber), but the subscriber's (condom user's) estimate could be an overestimation or an underestimation of the actual population figures for his behavior. To look at the question of accuracy for consensus estimates, directional accuracy scores were computed for subscriber and nonsubscribers for each behavioral item. The findings of this study offered strong support for the hypothesis that subscribers and nonsubscribers will not accurately estimate consensus for sexual behaviors.

Both subscribers and nonsubscribers significantly overestimated consensus for Y4, vaginal intercourse and always using a condom, and Y8, oral sex and always using a barrier. Y4, vaginal intercourse and always using a condom and Y8, oral sex and always using a barrier would be considered desirable behaviors for subscribers. The expectation would be that subscribers would underestimate consensus for these items so as to feel unique and better than those students who do not use protection during vaginal or oral sex. This was not the case in this study and it may be that for some college students, always using condoms or barriers is an action that is not supported by peers/friends in their specific social group and thus these behaviors may have been perceived as undesirable in this instance. If this was the case, it would be expected that subscribers might overestimate and yet be serving self-enhancement goals. The fact that students who do not always use condoms during vaginal intercourse (Y4) or do not always use a barrier during oral sex (Y8) overestimated consensus for their actions would follow a motivational mechanism. Ross et al. (1977) would suggest that the more negative or undesirable the behavior, the more one should feel a need to justify one's behavioral choice, this may be accomplished by overestimating consensus for one's actions.

Both subscribers and nonsubscribers overestimated consensus for items Y11, being less than truthful with a new partner about past sexual history, and Y12, engaging in risky sexual behavior. Responding positively to these two items (subscriber) would indicate engaging in undesirable practices, thus the expectation would be that subscribers would overestimate consensus and nonsubscribers might underestimate consensus. Those students who did report lying about their past sexual history (Y11) or engaging in risky sexual behaviors (Y12) did overestimate consensus as might be predicted. Nonsubscribers, or those students who reported they have not lied about their past sexual history or have not engaged in risky sexual behaviors, also overestimated consensus. It may be that their consensus estimates were driven by selective exposure and cognitive availability mechanisms, rather than motivational mechanisms. If the individuals they associate with behave as they do, they may make the assumption that their social group is representative of the larger public and thus draw comparison information from a biased and limited sample of similar others (McFarland & Miller, 1990; Ross et al., 1977).

The behaviors that both subscribers and nonsubscribers underestimated consensus for included Y1, having been sexually active, Y2, having been sexually active in the past year, Y3, having had vaginal intercourse, Y7, having had oral sex, and Y9, having had unprotected sex after drinking too much. The underestimation by subscribers in relation to behavioral items Y1, Y2, Y3, and Y7 may again indicate a mechanism other than motivation processes for FCE. These four behaviors are generally not viewed as deviant, unsafe, or undesirable and thus may not present any threat to self. Sherman et al. (1984) have suggested that when no immediate threat to the self or self-esteem is present or when success or failure of behavioral choices are not immediately evident, subjects may cognitively deal with information differently. In this study, no immediate threats to self-esteem or manipulations of failure or success were presented, thus the mechanism for underestimations may not be motivational. Given a lack of other relevant information about specific sexual behaviors of their friends, these subjects' consensus estimates may

well have been based upon characteristics of the judge (self) (Sherman et al., 1984). The underestimations by nonsubscribers may indeed be self-enhancing, especially if not being sexually active is a behavior rewarded or reinforced by family or religion.

The underestimation of consensus by subscribers for Y7, having had unprotected sex after having too much to drink, is unexpected. One possible explanation may be that subjects, rather than evaluating the effectiveness or desirability of their own risk behavior and attempting to justify that behavior via motivational processes, chose to discredit or devalue the public health message that unprotected sex in association with alcohol use presents personal health risks. Work by Reis et al. (1993) would support this possible explanation. The underestimation of consensus by nonsubscribers would follow a motivational theory for social comparison. This behavior would be viewed as very desirable by those students who had not had unprotected sex after drinking too much (nonsubscribers) and underestimating consensus should be self-enhancing and offer a sense of uniqueness.

Subscribers overestimated and nonsubscribers underestimated consensus for Y5, having had anal intercourse and for item Y10, being sexually active with a new partner without first asking about that person's past sexual history. This pattern of consensus estimations is in line with the hypotheses proposed by Suls et al.(1988) in their work on FCE and health behaviors. Suls et al. (1988) predicted college students who were subscribers would overestimate consensus for undesirable or deviant behaviors and college students who were nonsubscribers would underestimate consensus for safe or protective behaviors. It is not improbable that the average college student views anal intercourse as an undesirable or deviant behavioral choice. The significant underestimation of consensus by nonsubscribers may be representative of false uniqueness. The motivation for underestimation may serve to make nonsubscribers feel unique and special because they are different from others in regard to these sexual behavior items (Marks & Miller, 1977).

On item Y6, anal intercourse and always using a condom, subscribers accurately estimated consensus and nonsubscribers overestimated consensus. It is possible that social stigma regarding anal sexual behavior played a role in these consensus estimates. The actual number of subjects who reported having anal intercourse was low relative to the frequency of all other sexual behaviors measured in this study. It may be that those respondents who indicated they had anal sex have already dealt with the social stigma attached to the behavior and found no need to justify their behavioral choice by inflating consensus estimates. Nonsubscribers, on the other hand, significantly overestimated consensus for this behavior which may reflect an extreme aversion or social stigma to anal sexual behavior in general. By overestimating consensus for those who do not practice anal intercourse, they may have been trying to justify their social or moral position that anal intercourse is bad, evil, or perverted.

In summary, previous research by Suls, Wan, and Suanders (1988) measured FCE over a variety of health behaviors hypothesized that college students would overestimate consensus for undesirable health behaviors and underestimate consensus for desirable behaviors. The findings of this study offer mixed support for this theory. Seven of the sexual behaviors measured have clearly identified desirable/undesirable outcomes (Y4, Y6, Y8, Y9, Y10, Y11, Y12). In only a few instances did subscribers overestimate consensus for undesirable behaviors and nonsubscribers underestimated consensus for desirable behaviors.

Factors Found to Have a Relationship to Behavioral Items

Factors Found to Have a Relationship to Y1, Sexual Activity

When students were asked if they had ever been sexually active, both students who had been sexually active and those who had not underestimated consensus for their actions. Perhaps because this is such a generic question, the consensus estimates by those students

who were sexually active may not have been motivationally driven. For some students however, being sexually active may be perceived as an undesirable behavior and thus we might expect those nonsubscribers to underestimate consensus for self-enhancing reasons. The degree of accuracy for consensus estimations was not found to be significantly related to any of the scale or subscale quartiles. Again, the generic and somewhat value-free nature of this question may not lend itself to motivational theories of explanation. Those demographic variables that were significantly related to the degree of accuracy of the consensus estimates for this item were age, gender, marital status, student classification, and partner gender. Mean scores indicated that males made greater overestimations of consensus than did females. In terms of age, students in the age category 28 and up underestimated consensus for this item, while students in all other age groups overestimated consensus. Those students who reported being single/never married overestimated consensus while all others, on average, underestimated consensus. Graduate students underestimated consensus for behavioral item Y1, while all undergraduates overestimated consensus. Lastly, when the means for the variable partner gender were reviewed, those students who reported having sex exclusively with other gender partners underestimated consensus, while those students who reported not being active sexually themselves made considerable overestimations of consensus on this item.

Factors Found to Have a Relationship to Y2, Sexual Activity /Past Year

As one might expect, Y2, have you been sexually active in the past year, parallels item Y1 in terms of accuracy of consensus estimates for subscribers and nonsubscribers. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the sexual depression subscale and the degree of accuracy of consensus estimates. Students across all quartiles of the sexual depression subscale underestimated consensus, but the degree of accuracy improved for those students

who scored the highest on the sexual depression subscale. In other words, those who felt most discouraged and saddened by their abilities to relate sexually to another had the greatest degree of accuracy in their consensus estimates. A significant relationship was also found between what quartile a subject fell into on the identity subscale of the CSE scale and the accuracy of consensus estimates. The identity subscale measures the importance of membership in a social group to one's self-concept (Luhtanen & Crocker, 1992). As identity grew in importance, the degree of accuracy of consensus estimates for this item decreased. The demographic variables that were significantly related to the degree of accuracy of consensus estimates for Y2 were marital status and partner gender. Divorced students overestimated consensus while all other groups underestimated consensus. In terms of partner gender, all sexually active students underestimated consensus regardless of the sex of their partner. Those students who indicated they were not sexually active greatly overestimated consensus for this item.

Factors Found to Have a Relationship to Y3, Vaginal Intercourse

Based on the consensus estimates, a strong false consensus effect was found for having had vaginal intercourse. In terms of directional accuracy, both subscribers and nonsubscribers significantly underestimated consensus for this behavioral, thus it parallels the previous two behavioral items. Once again, no significant linear associations were found between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the identity subscale of the CSE scale and the degree of accuracy of consensus estimates. As identity scores increased, the accuracy of consensus estimates decreased. Demographic variables that were significantly related to the degree of accuracy of consensus estimates for Y3 were age, marital status, place of residence, and evangelical rating. All age groups underestimated consensus, but the degree of accuracy decreased with age. In terms of marital status, all students underestimated consensus, but those students who identified as

single/never married had the highest degree of accuracy and those students who identified as married had the lowest degree of accuracy. Fraternity and sorority dwellers had a greater degree of accuracy in their estimations than did students who lived in residence halls or off campus. Lastly, the higher a student scored on evangelicalism, the poorer their degree of accuracy for consensus estimates on this behavioral item.

Factors Found to Have a Relationship to Y4, Vaginal Intercourse/Condom

In terms of directional accuracy for Y4, both subscribers and nonsubscribers significantly overestimated consensus for this behavioral. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates. A significant relationship was found between the quartile a subject fell into on the sexual depression and sexual esteem subscales of the sexuality scale and the degree of accuracy of consensus estimates. As sexual depression scores increased, the degree of accuracy of consensus estimates also increased. As sexual esteem scores increased, the degree of accuracy of consensus estimates decreased. There was also a significant relationship between the quartile a subject fell into on the religiosity scale and the accuracy of consensus estimates for this behavioral item. Those students who scored higher on the religiosity scale had a much poorer degree of accuracy. The demographic variables that were significantly related to the degree of accuracy of consensus estimates for Y4 were age, marital status, religion group, place of residence, and evangelicalism rating. The older students were, the poorer their degree of accuracy. Single/never married students had a greater degree of accuracy in their consensus estimates than did any other group. Catholics had a greater degree of accuracy than did other religion groups. In terms of place of residence, those students who lived in residence halls and off campus underestimated consensus, while fraternity and sorority dwellers overestimated consensus for this behavioral item. Finally, the higher a student's rating on evangelicalism, the poorer the degree of accuracy on consensus estimates.

Factors Found to Have a Relationship to Y5, Anal Intercourse

When students were asked to make consensus estimates for having had anal intercourse, subscribers significantly overestimated consensus while nonsubscribers significantly underestimated consensus. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the public subscale of the collective self-esteem scale. No other significant relationships were found between scale or subscale scores in relation to this behavioral item. The demographic variables that were significantly related to the degree of accuracy of consensus estimates for Y5 were age, marital status, and partner gender. The older the student, the greater their degree of accuracy. In terms of marital status, single/never married had the poorest degree of accuracy on consensus estimates. Those students who indicated they had had sex with a same gendered partner had a higher degree of accuracy than those students who indicated their sexual experience was strictly with persons of the other gender.

Factors Found to Have a Relationship to Y6, Anal Intercourse/Condom

In terms of directional accuracy for Y6, subscribers did not significantly overestimate or underestimate consensus for this behavior. In fact, subscribers were very close to an accurate estimate ($t=0.00$, $p=.5012$). Nonsubscribers did significantly overestimate consensus for this behavioral. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the religiosity scale and the accuracy of consensus estimates. The higher a student scored on the religiosity scale the poorer their accuracy on consensus estimates for this item. No other significant relationships were found between scale or subscale scores. Based on one-way analysis of variance testing, the category that subjects fell into on the following

demographic variables was significantly related to the degree of accuracy of consensus estimates for Y6: gender and evangelical rating. Male students had a higher degree of accuracy in estimations than did female students and the higher a student's rating on evangelicalism, the poorer the accuracy of their consensus estimates.

Factors Found to Have a Relationship to Y7, Oral Sex

Both subscribers and nonsubscribers significantly underestimated consensus for Y7, having ever had oral sex. As with the previous behavioral items, there were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the sexuality scale and the degree of accuracy of consensus estimates. The higher a student scored on the sexuality scale, the greater their degree of accuracy for consensus estimates for having had oral sex. There was also a significant relationship between the quartile a subject fell into on the identity subscale of the CSE scale and the accuracy of consensus estimates for this behavioral item. Based on one-way analysis of variance testing, the category that subjects fell into on the following demographic variables was significantly related to the degree of accuracy of consensus estimates for Y7: age, marital status, place of residence, and evangelical rating. The accuracy of consensus estimates for this item improved with age. In terms of marital status, single/never married students and cohabiting students had a greater degree of accuracy in their estimations of consensus. Students who reported living in a sorority had a higher degree of accuracy than did students living in any other setting. Finally, those students whose evangelical rating was low or medium had an equivalent degree of consensus accuracy, but those students whose evangelical rating was high had a poorer degree of accuracy.

Factors Found to Have a Relationship to Y8, Oral Sex/Barrier

Both subscribers and nonsubscribers significantly overestimated consensus for Y8, having oral sex and always using a barrier. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the public subscale of the collective self-esteem scale. No other significant relationships were found between scale or subscale scores in relation to this behavioral item. Based on one-way analysis of variance testing, the category that subjects fell into on the following demographic variables was significantly related to the degree of accuracy of consensus estimates for Y8: ethnic identity, and student classification. Hispanic Americans and Asian Americans had the greatest degree of accuracy for estimations of this behavioral item and African Americans had the lowest degree of accuracy. In terms of student classification, sophomores and graduate students were more accurate in their estimations than were freshman, junior, and senior students.

Factors Found to Have a Relationship to Y9, Unprotected Sex After Drinking Too Much

In terms of directional accuracy, both subscribers and nonsubscribers significantly underestimated consensus for this behavior. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into on the sexuality scale and the quartile a subject fell into on the preoccupation subscale of the sexuality scale, and the degree of accuracy of consensus estimates. For both of these scale variables the pattern was similar. As students scored higher on the sexuality scale or on the preoccupation subscale, the degree of accuracy of their consensus estimates went up. There was also a significant relationship between the quartile a subject fell into on the public subscale of the CSE scale and the accuracy of consensus estimates for this

behavioral item. Students whose public subscale scores placed them in the third quartile had the greatest degree of accuracy in their consensus estimates. The following demographic variables were significantly related to the degree of accuracy of consensus estimates for Y9: gender, religion group, place of residence, and partner gender. Male students were more accurate in their consensus estimates for having had unprotected sex after having too much to drink than were female students, however both groups underestimated consensus. Those students who identified as Catholic or as Christian had a greater degree of accuracy for consensus on this item than did all other religious organizations combined. In terms of place of residence, only fraternity dwellers overestimated consensus for this item. Residence hall, sorority, and off campus dwellers all overestimated consensus and of these three, residence hall dwellers had the poorest degree of accuracy for consensus estimates for this behavioral item. Female students who reported that their sexual partners were always male had by far the poorest degree of accuracy for consensus estimates for Y9.

Factors Found to Have a Relationship to Y10
Sex Without First Asking About Partner's Past Sexual History

For behavioral item Y10, having had sex with a new partner without first asking about that person's past sexual history, subscribers significantly overestimated consensus while nonsubscribers significantly underestimated consensus. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into based on sexuality scale score and the degree of accuracy of consensus estimates. This relationship was also true for the sexual depression and sexual preoccupation subscales of the sexuality scale. Similar patterns were seen for all three scale variables. Students who fell into the first two quartiles underestimated consensus for this item and students who fell into the third and fourth quartiles slightly overestimated consensus for this item. The only

significant relationship found for the collective self esteem scale, was a relationship between the quartile a subject fell into on the private subscale and the degree of accuracy of consensus estimate. Students whose scores fell into the first quartile overestimated consensus, while students falling in all other quartiles underestimated consensus. Based on one-way analysis of variance testing, the category that subjects fell into on the following demographic variables was significantly related to the degree of accuracy of consensus estimates for Y10: age, gender, marital status, place of residence, and partner gender. Students in the 22-27 age category very minimally overestimated consensus for this behavior while all other age groups underestimated consensus. Students in the age category 28 and up had the poorest accuracy in their estimations. In terms of gender, male students overestimated consensus while female students underestimated consensus. Single/never married students were most accurate in their estimations of consensus and married students had the least degree of accuracy for this behavioral item. Fraternity dwellers overestimated consensus for this behavior while students in all other living situations underestimated consensus. Finally, in relation to partner gender, female students who identified as having exclusively male partners underestimated consensus for this item while all other groups overestimated consensus.

Factors Found to Have a Relationship to Y11
Being Less Than Truthful About Past Sexual History

For behavioral item Y11, both subscribers and nonsubscribers significantly overestimated consensus. As with all other behaviors, there were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into based on sexuality scale score and the degree of accuracy of consensus estimates. This relationship was also true for the depression subscale and the preoccupation subscale of the sexuality scale. In general, as a student scored higher on the sexuality scale, their accuracy of

consensus estimates improved. Based on one-way analysis of variance testing, the category that subjects fell into on the following demographic variables was significantly related to the degree of accuracy of consensus estimates for Y11: age, gender, marital status, religion group, place of residence, and partner gender. All age groups displayed a similar degree of accuracy for this item except the category 22-27. This age group had a greater degree of accuracy on consensus estimates than the others. Male students had a greater degree of accuracy then did female students. In terms of marital status, married students had the poorest degree of accuracy. Fraternity dwellers had the greatest degree of accuracy of consensus estimates as compared to all other living situations and male students who reported have sex exclusively with females also had the greatest degree of accuracy in their estimations for this behavioral item.

Factors Found to Have a Relationship to Y12, Engaging in Risky Sexual Behaviors

In terms of directional accuracy, both subscribers and nonsubscribers significantly overestimated consensus for this behavioral question. There were no significant linear associations between any of the four scales and the accuracy of consensus estimates on this item. A significant relationship was found between the quartile a subject fell into based on sexuality scale score and the degree of accuracy of consensus estimates. This relationship was also true for the sexual preoccupation subscale of the sexuality scale. The pattern for both these scale variables was similar. As students scored higher on the scale or subscale, the degree of accuracy improved. There was also a significant relationship between the quartile a subject fell into on the collective self-esteem scale and on the private and identity subscales of the CSE scale. Again, a similar pattern emerged for all three of these scale variables. The lower a student's score on these three scale variables, the greater their accuracy of consensus estimates for Y12, having engaged in risky sexual behaviors. Based on one-way analysis of variance testing, the category that subjects fell into on the following demographic variables was significantly related to the degree of accuracy of

consensus estimates for Y12: age, gender, marital status, ethnic identity, and partner gender. Students across all age categories had a similar degree of consensus accuracy with the exception of students in the 28 and up category. This group had a poorer degree of accuracy. Male students were more accurate in their consensus estimates for this behavior than were female students. Married students had the poorest degree of accuracy for estimations of others who engage in risky sexual behaviors. In terms of ethnicity, Asian Americans had the poorest degree of accuracy and American Indian/Alaskan had the highest degree of accuracy. Lastly, in relation to partner gender, those students who reported having had a same gender sexual partner had a higher degree of accuracy of consensus estimate for engaging in risky sexual behavior.

Summary and Conclusions

The purpose of this study was three fold: 1) to determine if false consensus effects would be found for estimates of sexual behaviors, 2) to determine the directional accuracy of consensus estimates for subscribers and nonsubscribers and 3) to determine if the degree of accuracy of those estimates was influenced by self-esteem, sexual esteem, collective self-esteem, and religiosity. Data was collected through the use of a survey questionnaire during the Fall Term of 1994. The final sample consisted of 821 Oregon State University students enrolled in selected 100, 200, 300, and 400 level classes which qualified as part of the baccalaureate core at O.S.U.

The results of the study were as follows:

1. Significant false consensus effects were found for the twelve sexual behaviors reported in the study.
2. Subscribers' and nonsubscribers' estimates of consensus were not accurate across all behvioral items except Y6 (anal intercourse and condom use).
3. Both subscribers and nonsubscribers underestimated consensus for sexual behaviors that were not viewed as unsafe: 1)Y1, having ever been sexually active,

2) Y2, having been sexually active in the past year, 3)Y3, having had vaginal intercourse, and 4) Y7, having had oral sex

4. Both subscribers and nonsubscribers underestimated consensus for Y9, having unprotected sex after having had too much to drink.

5. Both subscribers and nonsubscribers overestimated consensus for unsafe behavioral items Y11, having been less than truthful with a new partner about one's past sexual history and for Y12, having engaged in risky sexual behavior.

6. Both subscribers and nonsubscribers overestimated consensus for safe sexual behaviors 1) Y4, always using a condom during vaginal intercourse, 2) Y8, always using a barrier during oral sex. In addition, nonsubscribers overestimated consensus for Y5, always using a condom during anal intercourse.

7. When estimating consensus for Y10, having had sex with a new partner without asking about that person's past sexual history, subscribers overestimated consensus while nonsubscribers underestimated consensus.

8. Subscribers accurately predicted consensus for Y6, always using a condom during anal intercourse.

9. Self esteem scores were not associated with accuracy of consensus estimates.

10. Total sexuality scale scores, depression subscale scores, and preoccupation subscale scores were most often associated with accuracy of consensus estimates for behaviors that were classified as unsafe: Y9, unprotected sex after drinking, Y10, no ask sexual history, Y11, lied about sexual history, Y12, risky sexual behavior.

11. Sexual depression subscale scores and sexual esteem subscale scores were associated with accuracy of consensus estimates for safe behaviors: Y2, sex past year, Y4, vaginal intercourse and condom use.

12. Collective self-esteem scale scores were not consistently or predictably associated with accuracy of consensus estimates.

13. Religiosity scale scores were not consistently or predictably associated with accuracy of consensus estimates.
14. A motivational theory for false consensus effects as measured by the self-esteem scale, sexuality scale, collective self-esteem scale, and religiosity scale used in this study is not supported.

Conclusions

1. Significant false consensus effects have been documented in many previous studies across a variety of domains. To date, no previous research had looked at the area of human sexual behavior and false consensus effects. This study concluded that significant false consensus effects were found for consensus estimates for a variety of human sexual behaviors.
2. The directional accuracy of estimations for subscribers and nonsubscribers did not follow any predictable or consistent pattern across the twelve behavioral items.
3. The instruments chosen to operationalize the motivational mechanism for false consensus effects may have been too global and therefore ineffective measures. The Sexuality Scale, which was domain specific, was the only instrument whose measure had any consistent and significant association with accuracy of consensus estimates.
4. Other mechanisms in addition to motivational processes may be contributing to false consensus effects for sexual behaviors.

Recommendations for Future Study

The results of this study represent an attempt to identify if false consensus effects would be found for estimates of sexual behaviors, if the directional accuracy of those estimates would vary between subscribers and nonsubscribers, and if the accuracy of the

estimates would be significantly influenced by self-esteem, sexual esteem, collective self-esteem, and religiosity. Based upon the results, the following recommendations are suggested for future study.

1. Future research examining the FCE in estimates of human sexual behavior should focus on fewer sexual behavior items to encourage more complete and thoughtful estimates of consensus.
2. Future research examining the FCE in estimates of human sexual behavior should utilize more domain specific instruments to assess for motivational mechanisms.
3. Future research examining the FCE in estimates of human sexual behavior should employ a more homogeneous sample in terms of primary socializing group.
4. Future research examining the FCE in estimates of human sexual behaviors should explore other explanatory mechanisms or a combination of explanatory mechanisms.
5. Future research design might include more contextually specific descriptions of sexual behaviors.
6. Although subjects in this study were guaranteed anonymity to help minimize self-presentation bias, this bias might further be reduced by mailing surveys which would allow subjects to complete questionnaires within the privacy of the home, rather than the classroom.

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APPENDICES

APPENDIX A: SURVEY INSTRUMENT

September 26, 1994

OREGON
STATE
UNIVERSITY

Waldo Hall 256
Corvallis, Oregon
97331-6406

Dear Student:

I am a Doctoral candidate at Oregon State University in the Department of Public Health, and I would like your assistance in a research project. While teaching the AIDS and Sexually Transmitted Disease class (H 312) on campus, I became increasingly interested in how each of us perceives our potential risk for contracting a sexually transmitted disease. This research project is designed to gather information to better understand that risk-perception process.

While you are not under any obligation to answer any of the questions, your participation would be greatly appreciated. The information collected through this research project will help provide insight into designing more effective disease-prevention programs. Please be assured that any information you share with us is completely confidential, and you will not be identified in any way.

Your return of the questionnaire at the end of this class period will serve as a statement of consent that you agreed to participate in the study. If you have any questions regarding this project, please contact Peggy Pedersen or Dr. Margaret Smith in the Department of Public Health, Waldo Hall, Oregon State University: (503)737-3840 or 737-2686. Thank you very much for your help.

Sincerely,
Redacted for privacy

Telephone
503-737-2686
Fax
503-737-4001

Dr. Margaret Smith
Department of Public Health

APPENDIX A: SURVEY INSTRUMENT

Q1. The following statements relate to attitudes, feelings, and beliefs you have about yourself. Please indicate your level of agreement with each statement by circling the number that corresponds to the rating that best describes your feelings.

		Strongly Disagree						Strongly Agree
A.	I feel that I have a number of good qualities.	1	2	3	4	5	6	7
B.	On the whole, I am satisfied with myself.	1	2	3	4	5	6	7
C.	At times I think I am no good at all.	1	2	3	4	5	6	7
D.	I feel I do not have much to be proud of.	1	2	3	4	5	6	7
E.	I feel that I am a person of worth, at least on an equal basis with others.	1	2	3	4	5	6	7
F.	All in all, I am inclined to feel that I am a failure.	1	2	3	4	5	6	7
G.	I wish I could have more respect for myself.	1	2	3	4	5	6	7
H.	I am able to do things as well as most other people.	1	2	3	4	5	6	7
I.	I take a positive attitude toward myself.	1	2	3	4	5	6	7
J.	I certainly feel useless at times.	1	2	3	4	5	6	7

Q2. These statements relate to your attitudes, feelings, and beliefs about your sexual self. Please respond to each statement by circling the rating that best expresses your feelings about your sexuality.

		Strongly Disagree						Strongly Agree
A.	I feel good about my sexuality.	1	2	3	4	5	6	7
B.	I think about sex all the time.	1	2	3	4	5	6	7
C.	I think of myself as a very good sexual partner.	1	2	3	4	5	6	7
D.	I would rate myself low as a sexual partner.	1	2	3	4	5	6	7
E.	I am disappointed about the quality of my sex life.	1	2	3	4	5	6	7
F.	I feel pleased with my sex life.	1	2	3	4	5	6	7
G.	I think about sex a great deal of the time.	1	2	3	4	5	6	7
H.	I tend to be preoccupied with sex.	1	2	3	4	5	6	7
I.	I am confident about myself as a sexual partner.	1	2	3	4	5	6	7
J.	I think about sex more than anything else.	1	2	3	4	5	6	7
K.	I am constantly thinking about having sex.	1	2	3	4	5	6	7
L.	I feel down about my sex life.	1	2	3	4	5	6	7
M.	I would rate my sexual skills quite highly.	1	2	3	4	5	6	7
N.	I am a good sex partner.	1	2	3	4	5	6	7
O.	I am depressed about the sexual aspects of my life.	1	2	3	4	5	6	7

Q3. Religion has varied meaning in each person's life. Please indicate how each of the statements below describe your values, attitudes, or beliefs about religion. Respond by circling the rating that best describes your answer.

		Strongly Disagree						Strongly Agree
A.	The church is very important to me.	1	2	3	4	5	6	7
B.	I think the bible is out of date.	1	2	3	4	5	6	7
C.	Saying my prayers helps me a lot.	1	2	3	4	5	6	7
D.	I find it boring to listen to the bible.	1	2	3	4	5	6	7
E.	I know that Jesus helps me.	1	2	3	4	5	6	7
F.	I think going to church is a waste of my time.	1	2	3	4	5	6	7
G.	I want to love Jesus.	1	2	3	4	5	6	7
H.	I think church services are boring.	1	2	3	4	5	6	7
I.	God helps me to lead a better life.	1	2	3	4	5	6	7
J.	I think people who pray are stupid.	1	2	3	4	5	6	7
K.	I like to learn about God very much.	1	2	3	4	5	6	7
L.	God means a lot to me.	1	2	3	4	5	6	7
M.	I believe that God helps people.	1	2	3	4	5	6	7
N.	Prayer helps me a lot.	1	2	3	4	5	6	7
O.	I know that Jesus is very close to me.	1	2	3	4	5	6	7
P.	I think praying is a good thing.	1	2	3	4	5	6	7
Q.	I believe that God listens to prayers.	1	2	3	4	5	6	7
R.	Jesus doesn't mean anything to me.	1	2	3	4	5	6	7
S.	God is very real to me.	1	2	3	4	5	6	7
T.	I think saying prayers does no good.	1	2	3	4	5	6	7
U.	The idea of God means much to me.	1	2	3	4	5	6	7
V.	I believe that Jesus still helps people.	1	2	3	4	5	6	7
W.	I know that God helps me.	1	2	3	4	5	6	7
X.	I find it hard to believe in God.	1	2	3	4	5	6	7

Q4. We all spend time each week socializing with other people. Which of the following items BEST characterizes the group of friends you socialize with the most? Please mark only ONE answer.

1 GROUP OF CO-WORKERS
2 PEOPLE IN MY RESIDENCE HALL
3 SORORITY MEMBERS
4 FRATERNITY MEMBERS
5 OFF-CAMPUS ROOMMATES
6 FELLOW ATHLETES / TEAM MEMBERS
7 CHURCH FRIENDS
8 FAMILY MEMBERS
9 OTHER (Please Specify _____)

Q5. Please respond to the statements below on the basis of how you feel about the group membership you identified in Q4. Circle the rating for each statement that best describes your feelings about that group and your membership in it.

		Strongly Disagree						Strongly Agree
A.	In general, others think that this group I am a member of is unworthy.	1	2	3	4	5	6	7
B.	Most people consider this group, on the average, to be more ineffective than other social groups.	1	2	3	4	5	6	7
C.	I often regret that I belong to this group.	1	2	3	4	5	6	7
D.	Overall, this group is considered good by others.	1	2	3	4	5	6	7
E.	This group I belong to is unimportant to my sense of what kind of person I am.	1	2	3	4	5	6	7
F.	In general, I'm glad to be a member of this group.	1	2	3	4	5	6	7
G.	Overall, this group membership has very little to do with how I feel about myself.	1	2	3	4	5	6	7
H.	I feel good about this group I belong to.	1	2	3	4	5	6	7
I.	Overall, I often feel that this group of which I am a member is not worthwhile.	1	2	3	4	5	6	7
J.	In general, belonging to this group is an important part of my self-image.	1	2	3	4	5	6	7
K.	In general, others respect this group I am a member of.	1	2	3	4	5	6	7
L.	I often feel I'm a useless member of this group.	1	2	3	4	5	6	7
M.	I am a worthy member of this group.	1	2	3	4	5	6	7
N.	I am a cooperative participant in this group.	1	2	3	4	5	6	7
O.	This group that I belong to is an important reflection of who I am.	1	2	3	4	5	6	7
P.	I feel I don't have much to offer this group.	1	2	3	4	5	6	7

Q6. In response to the following questions, please estimate the percentage of non married persons in your current social group who have participated in the behaviors or actions described. The % YES is your estimation of those in your social group who DO participate in the behavior or action described. The % NO represents your estimation of those in your social group who DO NOT participate in the behavior or action described. It is important that the total of your %YES and %NO responses equal 100%. Please make an estimation (educated guess) for ALL questions.

EXAMPLE:

	YES	NO	TOTAL
In your current social group, what percent of your friends smoke?	30%	70%	100%

		YES	NO	TOTAL
A.	What percent of your friends has been sexually active (vaginal intercourse, anal intercourse, or oral sex)?	____%	____%	100 %
B.	What percent of your friends has been sexually active (vaginal intercourse, anal intercourse, or oral sex) in the past year?	____%	____%	100 %
C.	What percent of your friends has had vaginal intercourse?	____%	____%	100 %
D.	What percent of your friends always use a condom during vaginal intercourse?	____%	____%	100 %
E.	What percent of your friends has had anal intercourse?	____%	____%	100 %
F.	What percent of your friends always use a condom during anal intercourse?	____%	____%	100 %
G.	What percent of your friends has had oral sex?	____%	____%	100 %
H.	What percent of your friends always use a protective barrier (condom, dental dam, or other latex barrier) during oral sex?	____%	____%	100 %
I.	What percent of your friends has had unprotected sex with someone after drinking too much?	____%	____%	100 %
J.	What percent of your friends has been sexually active with a new partner without first asking about that person's past sexual history?	____%	____%	100 %
K.	What percent of your friends has been less than truthful with a new partner about his/her past sexual history?	____%	____%	100 %
L.	What percent of your friends engage in risky sexual behaviors?	____%	____%	100 %

Q7. The following questions are regarding your sexual practices. I realize these questions are very personal in nature, but your honest response is very important to this study. Remember that all responses are anonymous. Please circle one answer for each question.

A. Have you ever been sexually active (vaginal intercourse, anal intercourse, or oral sex)?

1 NO (Skip to Q8.)
2 YES (Go on)

B. Have you been sexually active in the past year (vaginal intercourse, anal intercourse, or oral sex)?

1 No (Skip to Q8.)
2 YES (Go on)

C. Have you ever had vaginal intercourse?

1 No (Skip to item E.)
2 YES (Go on)

D. Do you use a condom during vaginal intercourse?

1 ALWAYS
2 USUALLY
3 RARELY
4 NEVER

E. Have you ever had anal intercourse?

1 NO (Skip to item G.)
2 YES (Go on)

F. Do you use a condom during anal intercourse?

1 ALWAYS
2 USUALLY
3 RARELY
4 NEVER

G. Have you ever had oral sex?

1 NO (Skip to item I.)
2 YES (Go on)

H. Do you use a protective barrier (condom, dental dam, or other latex barrier) during oral sex?

1 ALWAYS
2 USUALLY
3 RARELY
4 NEVER

	YES	NO
I. Have you ever had unprotected sex (vaginal, anal, or oral) with someone after having too much to drink?	1	2
J. Have you ever been sexually active with a new partner without first asking about that person's past sexual history?	1	2
K. Have you ever been less than truthful with a new partner about your past sexual history?	1	2
L. Do you feel you engage in risky sexual behaviors?	1	2

Q8. This last group of questions is designed to gather some general background information on those persons who are participating in this study. Again remember that all your responses are anonymous.

A. What is your current age?

_____ AGE

B. What is your gender?

1 MALE
2 FEMALE

C. What is your current marital status?

1 SINGLE/NEVER MARRIED
2 COHABITING, HAVE A LIVE-IN INTIMATE PARTNER
3 MARRIED
4 DIVORCED
5 WIDOWED

D. Which best describes your ethnic identity?

1 CAUCASIAN
2 AFRICAN AMERICAN
3 HISPANIC AMERICAN
4 ASIAN AMERICAN
5 AMERICAN INDIAN/ALASKAN NATIVE
6 OTHER (Please specify_____)

E. What is your academic major?

_____MAJOR

F. What is your current student classification?

1 FRESHMAN
2 SOPHOMORE
3 JUNIOR
4 SENIOR
5 GRADUATE

G. Which of the following statements **BEST** describes your current belief system?

1 I do not believe in any higher power, spirit, or being. **(Skip to Item I.)**
2 I believe in a higher power, spirit, or being, but I do not witness or worship with others. **(Skip to Item I.)**
3 I believe in a higher power, spirit, or being, and I identify with an organized religious group. **(Go on to Item H.)**

H. What religion are you affiliated with?

(Please specify) _____

I. Where do you currently live?

1 COLLEGE RESIDENCE HALL
2 FRATERNITY
3 SORORITY
4 CO-OP
5 AT HOME WITH PARENT(S)
6 OFF CAMPUS

J. Which of these statements comes closest to describing your feelings about the Bible?

1 The Bible is the actual word of God and is to be taken literally, word for word.
2 The Bible is the inspired word of God but not everything in it should be taken literally, word for word.
3 The Bible is an ancient book of fables, legends, history, and moral precepts recorded by men.

K. Have you ever tried to encourage someone to believe in Jesus Christ or to accept Him as his or her Savior?

1 NO
2 YES

L. Would you say that you have been born again or have had a born-again experience—that is, a turning point in your life when you committed yourself to Christ?

1 NO
2 YES

M. If you have been sexually active (vaginal intercourse, anal intercourse, or oral sex), what was the gender of your partner(s)?

1 ALWAYS MALE
2 ALWAYS FEMALE
3 SOMETIMES MALE AND SOMETIMES FEMALE
4 I HAVE NOT BEEN SEXUALLY ACTIVE

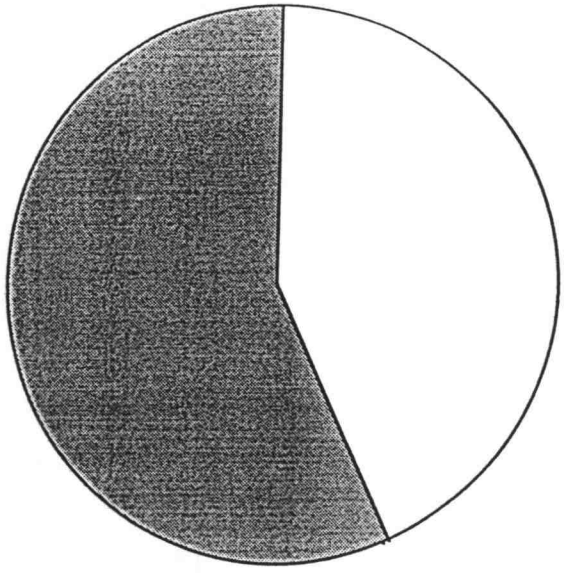
THANK YOU FOR PARTICIPATING IN THIS STUDY. YOUR TIME AND EFFORT IS GREATLY APPRECIATED.

APPENDIX B: FREQUENCY DATA — DEMOGRAPHICS

Frequency Distribution for D03 Gender (Q8B)

	Count
Male	354
Female	463
Total	817

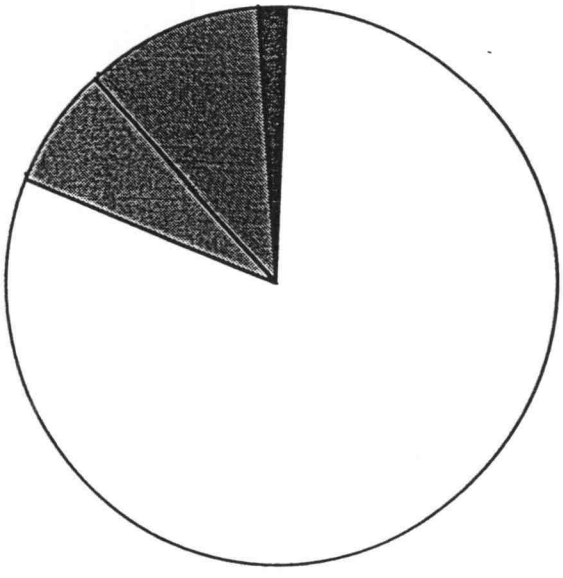
Male 43%
Female 57%



Frequency Distribution for D04 Marital Status (Q8C)

	Count
Single/Never Married	660
Cohabiting	60
Married	86
Divorced	12
Total	818

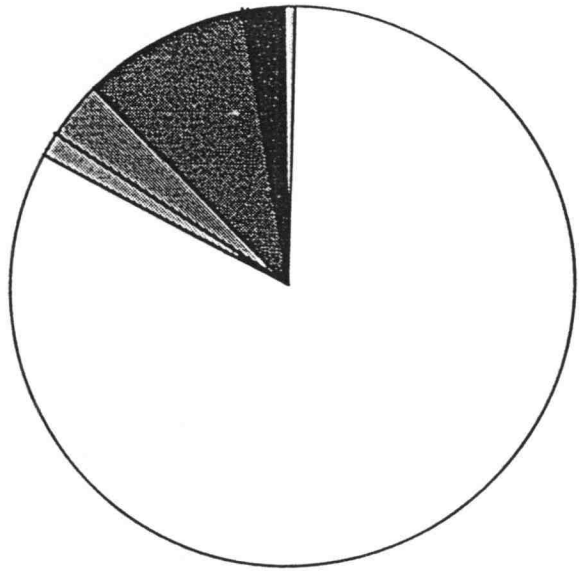
Single/Never Married 81%
Cohabiting 7%
Married 11%
Divorced <2%



Frequency Distribution for D05 Ethnic Identity (Q8D)

	Count
Caucasian	668
African American	11
Hispanic American	28
Asian American	79
American Indian/Alaskan	19
Other	4
Total	809

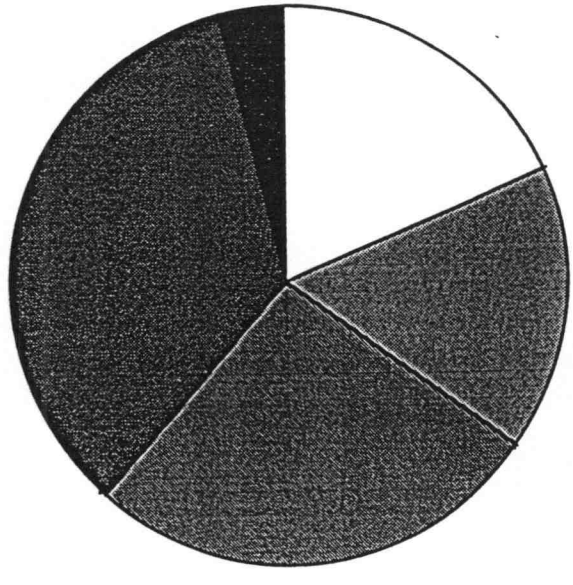
- Caucasian 82%
- African American <2%
- Hispanic American 3.5%
- Asian American 10%
- American Indian/Alaskan 2.5%
- Other <1%



Frequency Distribution for D07 Class (Q8F)

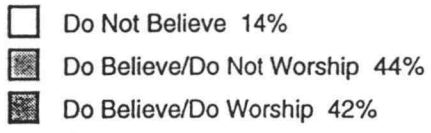
	Count
Freshman	151
Sophomore	137
Junior	218
Senior	281
Graduate	30
Total	817

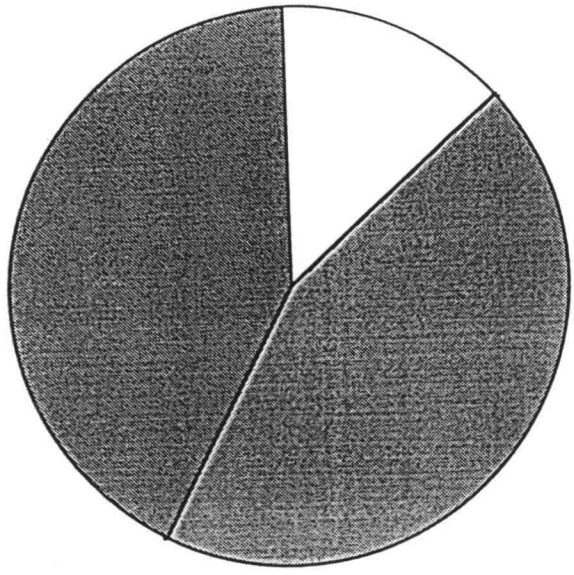
- Freshman 19%
- Sophomore 17%
- Junior 26%
- Senior 34%
- Graduate 4%



Frequency Distribution for D08 Belief System (Q8G)

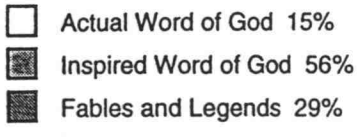
	Count
Do Not Believe	110
Do Believe/Do Not Worship	358
Do Believe/Do Worship	339
Total	807

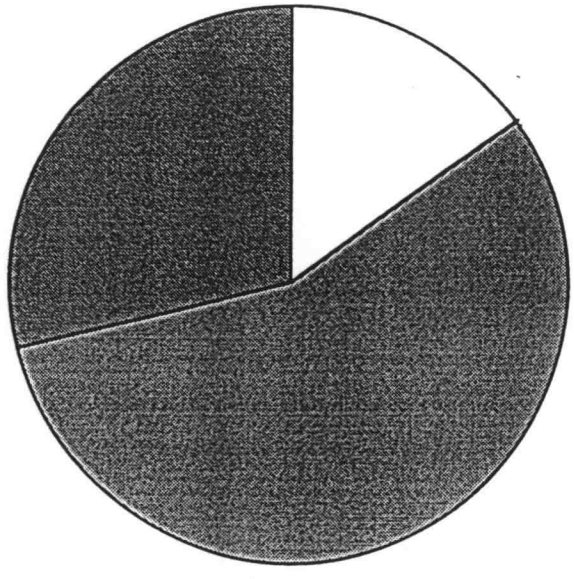




Frequency Distribution for D11 Bible Feelings (Q8J)

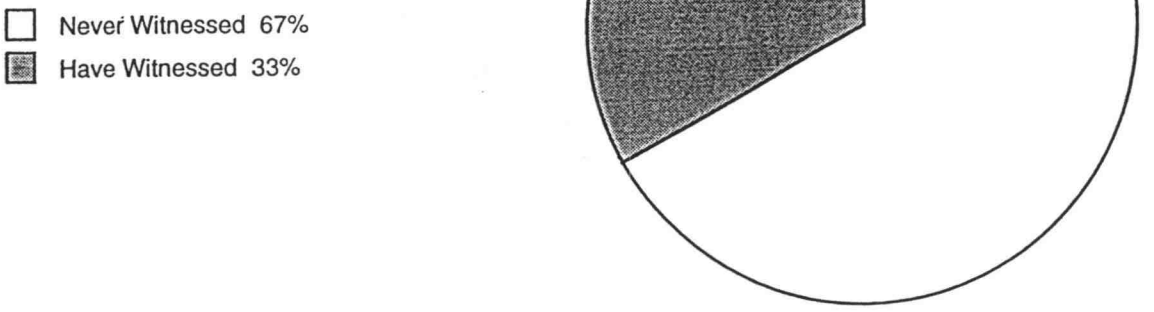
	Count
Actual Word of God	121
Inspired Word of ...	445
Fables and Legends	229
Total	795





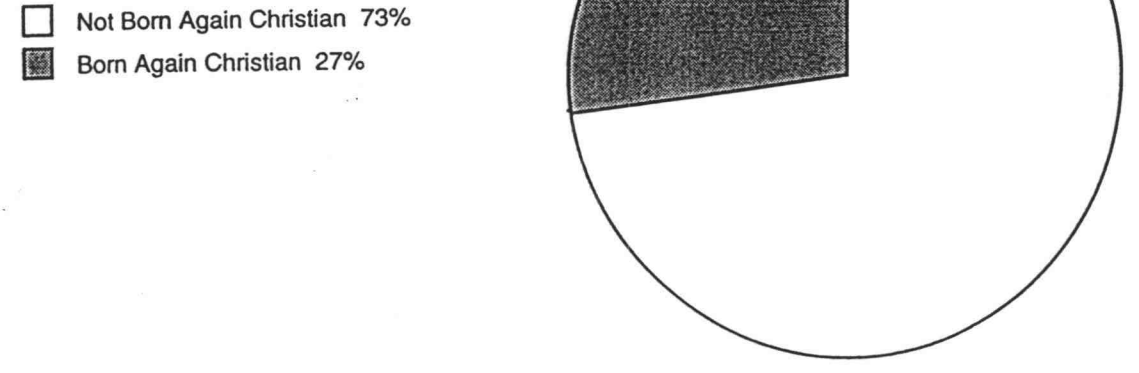
Frequency Distribution for D12 Witnessing (Q8K)

	Count
Never Witnessed	542
Have Witnessed	263
Total	805



Frequency Distribution for D13 Born Again (Q8L)

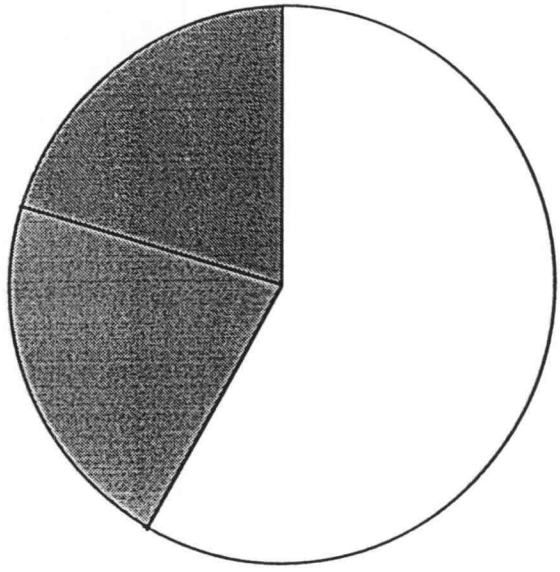
	Count
Not Born Again Christian	579
Born Again Christian	214
Total	793



Frequency Distribution for D19 Evangelicalism

	Count
Low	459
Medium	167
High	159
Total	785

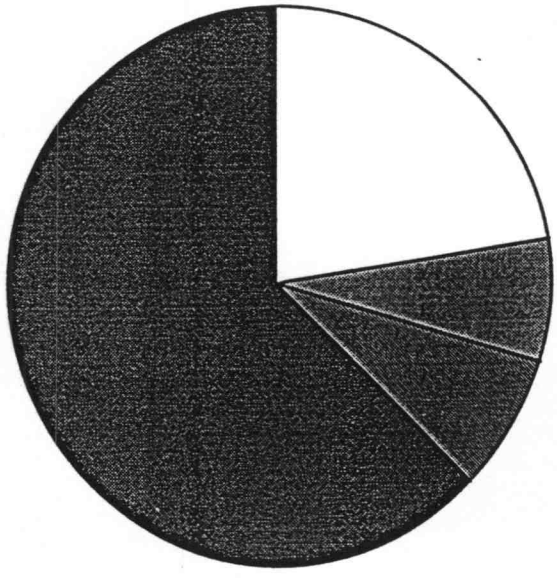
- Low 58.5%
- Medium 21.25%
- High 20.25%



Frequency Distribution for D18 Residence

	Count
Residence H...	183
Fraternity	58
Sorority	63
Off Campus	506
Total	810

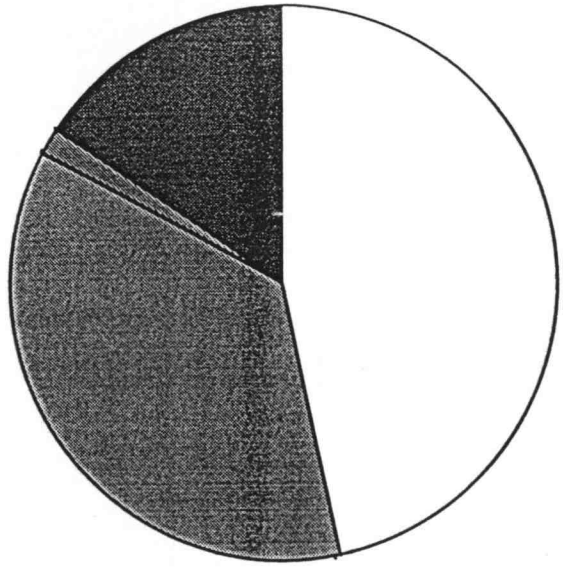
- Residence Hall 23%
- Fraternity 7%
- Sorority 8%
- Off Campus 56%



Frequency Distribution for D14 Partner's Gender (Q8M)

	Count
Always Male	371
Always Female	288
Male or Female	13
Not Sexually Active	122
Total	794

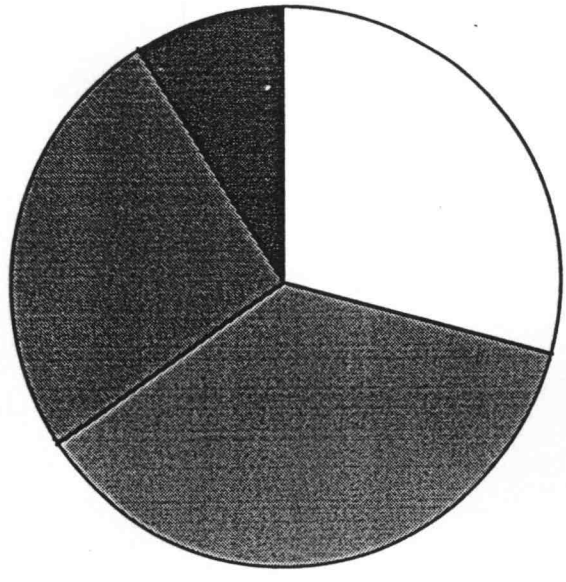
- Always Male 47%
- Always Female 36%
- Male or Female 2%
- Not Sexually Active 16%



Frequency Distribution for D15 Age Category

	Count
Age 16-19	239
Age 20-21	298
Age 22-27	208
Age 28 and up	71
Total	816

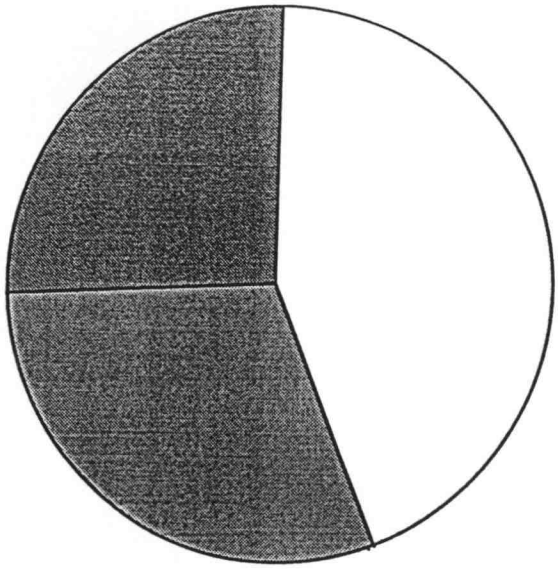
- Age 16-19 29%
- Age 20-21 37%
- Age 22-27 25%
- Age 28 and up 9%



Frequency Distribution for D17 Religion Category

	Count
Other	195
Catholic	134
Christi...	114
Total	443

Other 44%
Catholic 30%
Christian 26%



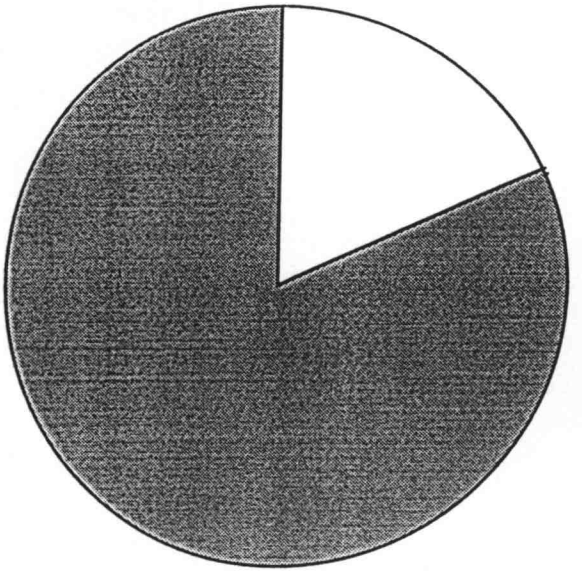
APPENDIX C: FREQUENCY DATA — SEXUAL BEHAVIORS

Frequency Distribution for D Y01 Sexually Active (Q7A)

	Count
No	148
Yes	663
Total	811

No 18%
Yes 82%

Have you ever been sexually active?

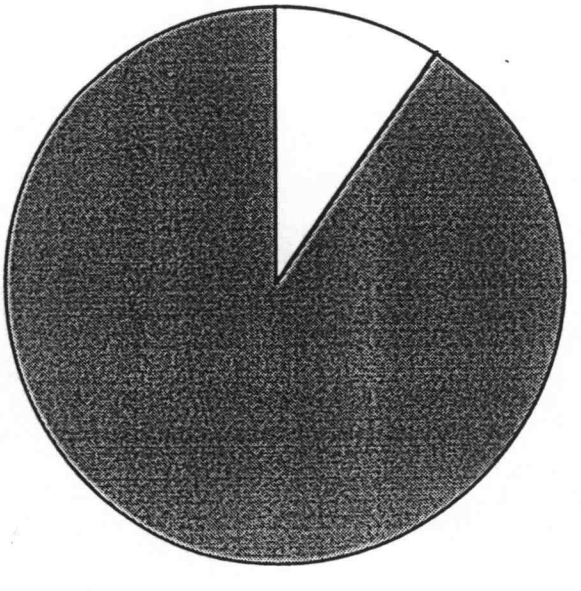


Frequency Distribution for D Y02 Active Past Year (Q7B)

	Count
No	63
Yes	602
Total	665

No 9.5%
Yes 90.5%

Have you been sexually active in the past year?

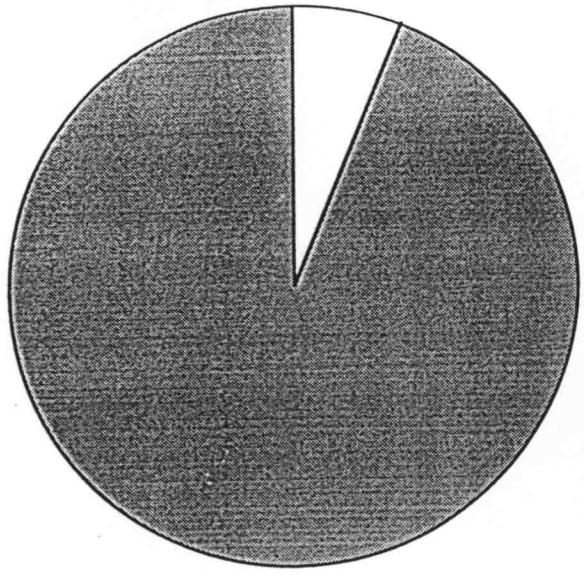


Frequency Distribution for D Y03 Vaginal Intercourse (Q7C)

	Count
No	38
Yes	574
Total	612

No 6.2%
Yes 93.8%

Have you ever had vaginal intercourse?

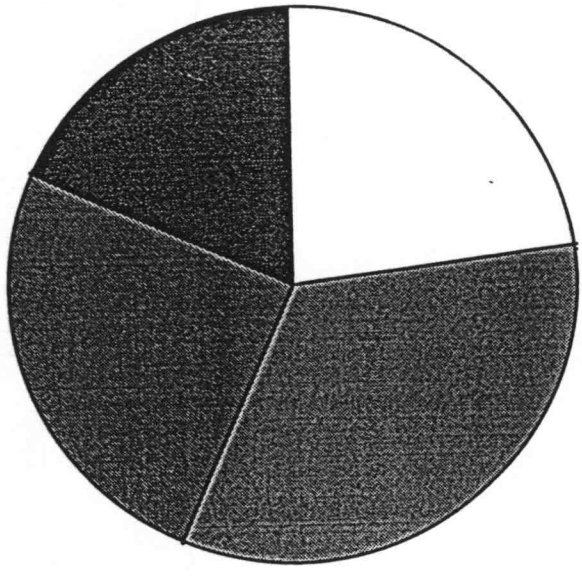


Frequency Distribution for D Y04 Vag Inter w. Condom (Q7D

	Count
Always	135
Usually	194
Rarely	147
Never	103
Total	579

Always 23.3%
Usually 33.5%
Rarely 25.3%
Never 17.8%

Do you use a condom during vaginal intercourse?

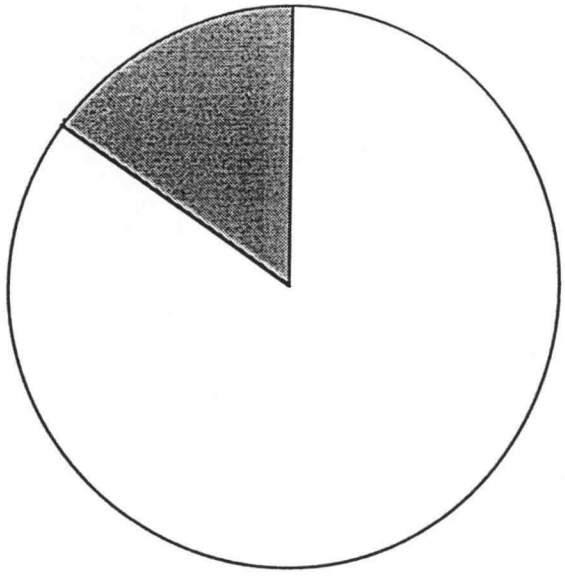


Frequency Distribution for D Y05 Anal Intercourse (Q7E)

	Count
No	519
Yes	93
Total	612

No 84.8%
Yes 15.2%

Have you ever had anal intercourse?

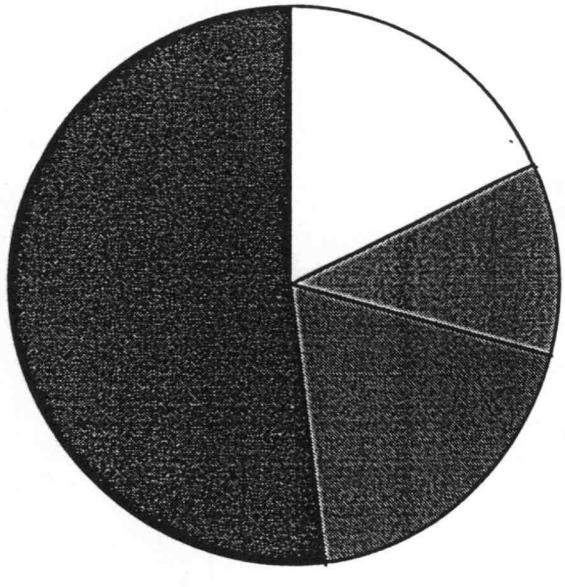


Frequency Distribution for D Y06 Anal Inter w. Condom (Q7F)

	Count
Always	19
Usually	12
Rarely	20
Never	55
Total	106

Always 17.9%
Usually 11.3%
Rarely 18.9%
Never 51.9%

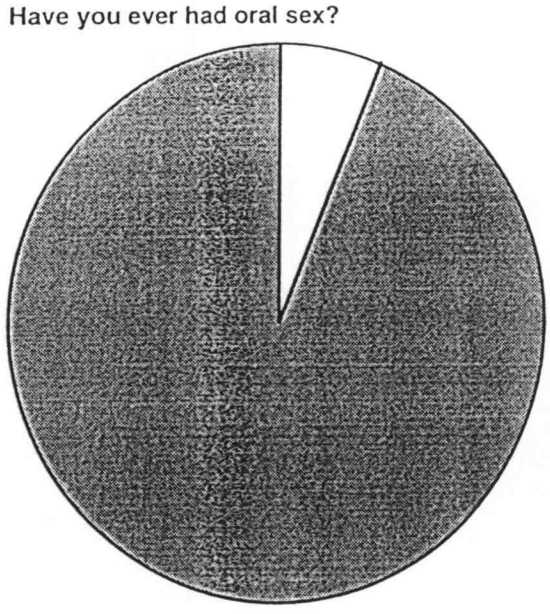
Do you use a condom during anal intercourse?



Frequency Distribution for D Y07 Oral Sex (Q7G)

	Count
No	38
Yes	571
Total	609

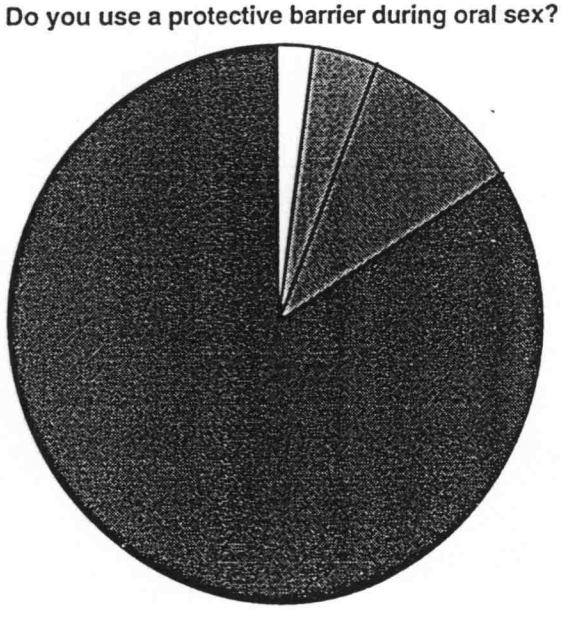
No 6.2%
Yes 93.8%



Frequency Distribution for D Y08 Oral Sex w. barrier (Q7H)

	Count
Always	13
Usually	23
Rarely	56
Never	478
Total	570

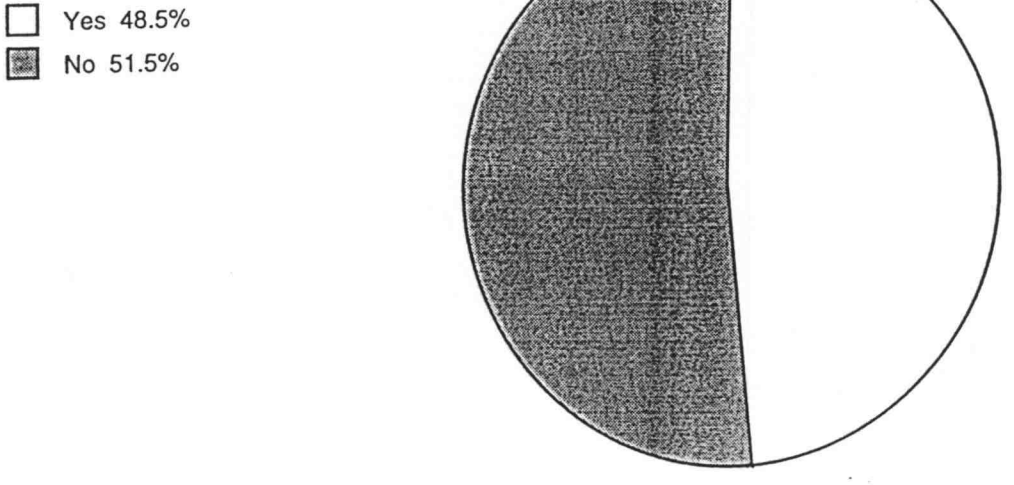
Always 2.3%
Usually 4%
Rarely 9.8%
Never 83.9%



Frequency Distribution for D Y09 Sex after Drinking (Q7I)

	Count
Yes	295
No	313
Total	608

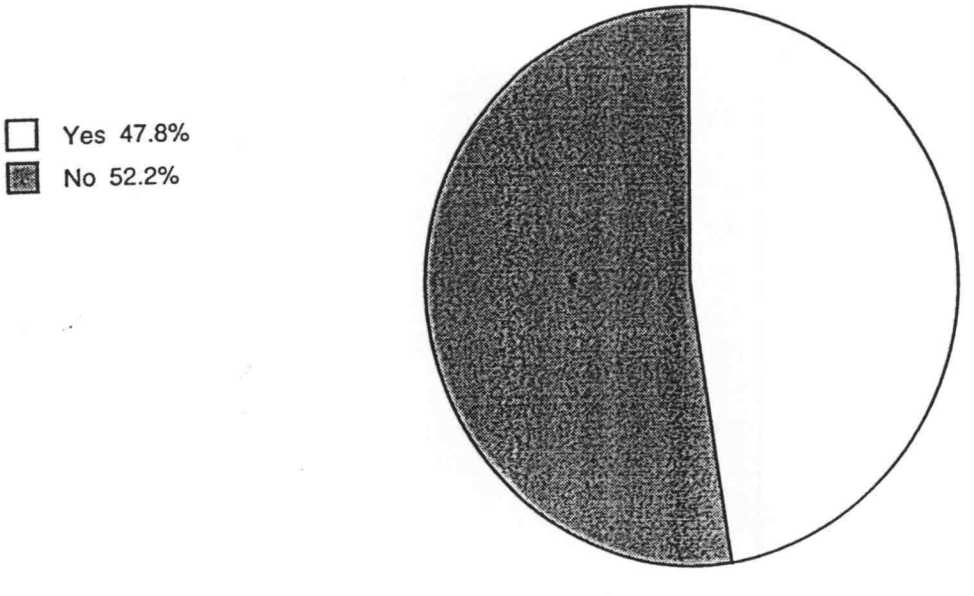
Have you ever had unprotected sex with someone after having too much to drink?



Frequency Distribution for D Y10 New - No Ask Past (Q7J)

	Count
Yes	290
No	317
Total	607

Have you ever been sexually active with a new partner without first asking about that person's past sexual history?

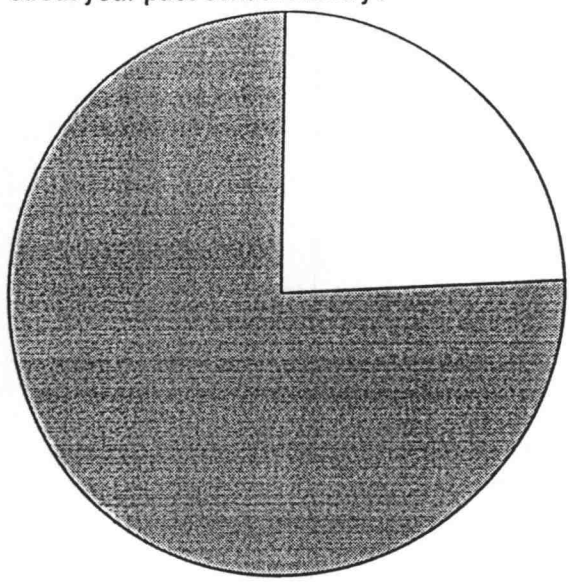


Frequency Distribution for D Y11 New - No Truth Past (Q7K)

	Count
Yes	148
No	459
Total	607

Yes 24.4%
No 75.6%

Have you ever been less than truthful with a new partner about your past sexual history?

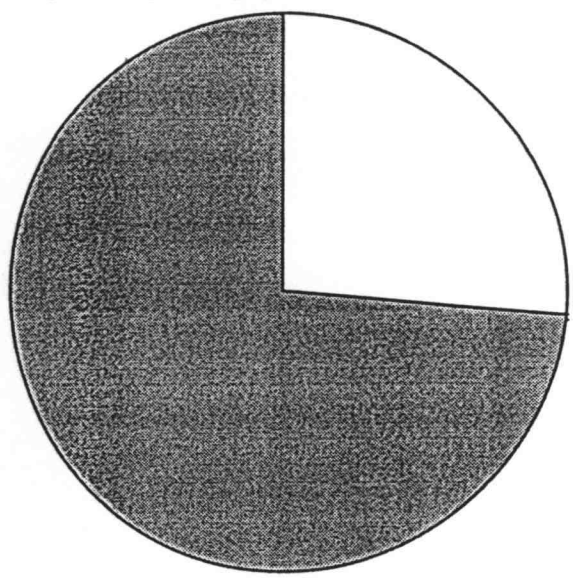


Frequency Distribution for D Y12 Risky Sex (Q7L)

	Count
Yes	161
No	444
Total	605

Yes 26.6%
No 73.4%

Do you feel you engage in risky sexual behaviors?



APPENDIX D: ANOVA SUMMARY TABLE — SCALE VARIABLES

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	2562.3516	854.1172	.9044	.4385
Residual	776	732887.8071	944.4431		

Model II estimate of between component variance: •
41 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	5021.7588	1673.9196	1.8755	.1322
Residual	761	679220.3178	892.5366		

Model II estimate of between component variance: 4.0963
56 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	2050.2773	683.4258	.7394	.5287
Residual	771	712664.3950	924.3377		

Model II estimate of between component variance: •
46 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	3684.8732	1228.2911	1.3759	.2489
Residual	752	671332.6256	892.7296		

Model II estimate of between component variance: 1.7843
65 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	5046.8720	1682.2907	1.8864	.1304
Residual	729	650106.9588	891.7791		

Model II estimate of between component variance: 4.3172
88 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	950.3940	316.7980	.3282	.8050
Residual	757	730723.2529	965.2883		

Model II estimate of between component variance: •
60 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	1406.5211	703.2605	.7531	.4713
Residual	791	738675.3169	933.8500		

Model II estimate of between component variance: •
27 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	3558.1813	1779.0906	1.9180	.1476
Residual	795	737424.4476	927.5779		

Model II estimate of between component variance: 3.361
23 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	2725.5885	908.5295	.9661	.4081
Residual	781	734452.6964	940.4004		

Model II estimate of between component variance: •
36 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	4176.6010	1392.2003	1.5061	.2116
Residual	789	729341.6170	924.3873		

Model II estimate of between component variance: 2.3727
28 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	7033.0601	2344.3534	2.5068	.0579
Residual	768	718242.6786	935.2118		

Model II estimate of between component variance: 7.3099
49 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	2662.2116	887.4039	.7985	.4950
Residual	638	709033.7015	1111.3381		

Model II estimate of between component variance: •
179 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	14473.1569	4824.3856	4.4383	.0042
Residual	644	700025.8711	1086.9967		

Model II estimate of between component variance: 23.2371
173 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	448.3954	149.4651	.1344	.9395
Residual	639	710429.2220	1111.7828		

Model II estimate of between component variance: •
178 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	5794.3944	1931.4648	1.7679	.1520
Residual	641	700288.4488	1092.4937		

Model II estimate of between component variance: 5.2443
176 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	6492.2669	2164.0890	1.9486	.1205
Residual	619	687457.1211	1110.5931		

Model II estimate of between component variance: 6.7758
198 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	7486.0075	2495.3358	2.2020	.0867
Residual	618	700332.7878	1133.2246		

Model II estimate of between component variance: 8.7926
199 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	113.9242	56.9621	.0517	.9496
Residual	646	711594.3002	1101.5392		

Model II estimate of between component variance: •
172 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	1865.5803	932.7901	.8548	.4258
Residual	650	709289.1943	1091.2141		

Model II estimate of between component variance: •
168 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	6613.1104	2204.3701	2.0014	.1126
Residual	636	700505.2829	1101.4234		

Model II estimate of between component variance: 7.0022
181 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	9552.2020	3184.0673	2.9338	.0328
Residual	644	698943.6736	1085.3163		

Model II estimate of between component variance: 13.0059
173 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	4574.7801	1524.9267	1.3654	.2523
Residual	624	696907.0640	1116.8382		

Model II estimate of between component variance: 2.6019
193 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	4346.1822	1448.7274	1.4170	.2368
Residual	586	599115.7177	1022.3818		

Model II estimate of between component variance: 2.9
231 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	792.5211	264.1737	.2624	.8525
Residual	594	598100.5892	1006.9033		

Model II estimate of between component variance: •
223 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	2427.9380	809.3127	.7936	.4978
Residual	587	598645.1388	1019.8384		

Model II estimate of between component variance: •
230 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	1947.9430	649.3143	.6439	.5870
Residual	591	596003.8149	1008.4667		

Model II estimate of between component variance: •
226 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	3782.8013	1260.9338	1.2438	.2930
Residual	572	579858.4751	1013.7386		

Model II estimate of between component variance: 1.7212
245 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	1532.0403	510.6801	.4829	.6943
Residual	568	600642.9044	1057.4699		

Model II estimate of between component variance: •
249 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	1073.5872	536.7936	.5265	.5909
Residual	594	605612.2541	1019.5492		

Model II estimate of between component variance: •
224 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	765.2288	382.6144	.3775	.6857
Residual	599	607073.9396	1013.4790		

Model II estimate of between component variance: •
219 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	434.4013	144.8004	.1431	.9341
Residual	584	591128.2397	1012.2059		

Model II estimate of between component variance: •
233 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	10700.1767	3566.7256	3.5471	.0144
Residual	592	595269.3604	1005.5226		

Model II estimate of between component variance: 17.2396
225 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	1718.3604	572.7868	.5588	.6424
Residual	573	587388.6362	1025.1111		

Model II estimate of between component variance: •
244 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	1856.6196	618.8732	.3401	.7964
Residual	556	1011847.4559	1819.8695		

Model II estimate of between component variance: •
261 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	28523.8895	9507.9632	5.3917	.0012
Residual	564	994585.6885	1763.4498		

Model II estimate of between component variance: 55.151
253 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	7051.0988	2350.3663	1.2909	.2767
Residual	557	1014176.3398	1820.7834		

Model II estimate of between component variance: 3.7963
260 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	16858.7176	5619.5725	3.1290	.0254
Residual	562	1009332.7860	1795.9658		

Model II estimate of between component variance: 27.2952
255 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	3826.1332	1275.3777	.6922	.5571
Residual	544	1002379.8653	1842.6100		

Model II estimate of between component variance: •
273 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	28865.1891	9621.7297	5.3861	.0012
Residual	539	962862.8673	1786.3875		

Model II estimate of between component variance: 58.0298
278 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	110.3945	55.1973	.0307	.9698
Residual	562	1010319.6563	1797.7218		

Model II estimate of between component variance: •
256 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	5731.3785	2865.6893	1.6011	.2026
Residual	567	1014824.1290	1789.8133		

Model II estimate of between component variance: 5.966
251 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	3510.2946	1170.0982	.6508	.5827
Residual	553	994225.9073	1797.8769		

Model II estimate of between component variance: •
264 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	5817.1956	1939.0652	1.0793	.3573
Residual	561	1007898.8559	1796.6112		

Model II estimate of between component variance: 1.0111
256 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	4981.1619	1660.3873	.9179	.4319
Residual	543	982181.7797	1808.8062		

Model II estimate of between component variance: •
274 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	2301.1509	767.0503	.6047	.6121
Residual	586	743291.6283	1268.4157		

Model II estimate of between component variance: •
231 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	681.1061	227.0354	.1783	.9111
Residual	595	757587.9472	1273.2571		

Model II estimate of between component variance: •
222 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	1081.1938	360.3979	.2786	.8409
Residual	588	760720.2809	1293.7420		

Model II estimate of between component variance: •
229 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	6493.4620	2164.4873	1.7198	.1617
Residual	592	745092.1608	1258.6016		

Model II estimate of between component variance: 6.1341
225 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	6997.0661	2332.3554	1.8206	.1422
Residual	573	734080.4506	1281.1177		

Model II estimate of between component variance: 7.3079
244 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	5129.3537	1709.7846	1.3011	.2732
Residual	568	746422.2420	1314.1237		

Model II estimate of between component variance: 2.7805
249 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	20.6144	10.3072	.0082	.9919
Residual	594	748945.3522	1260.8508		

Model II estimate of between component variance: •
224 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	1854.3160	927.1580	.7365	.4792
Residual	599	754067.3063	1258.8770		

Model II estimate of between component variance: •
219 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	10631.3752	3543.7917	2.8438	.0371
Residual	584	727746.9297	1246.1420		

Model II estimate of between component variance: 15.8815
233 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	2919.7152	973.2384	.7813	.5047
Residual	592	737428.4495	1245.6562		

Model II estimate of between component variance: •
225 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	5069.6217	1689.8739	1.3629	.2532
Residual	573	710468.3103	1239.9098		

Model II estimate of between component variance: 3.1239
244 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	2775.5362	925.1787	.3873	.7624
Residual	99	236484.7796	2388.7351		

Model II estimate of between component variance: •
718 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	1775.5386	591.8462	.2488	.8620
Residual	100	237874.9158	2378.7492		

Model II estimate of between component variance: •
717 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	2661.5459	887.1820	.3779	.7691
Residual	101	237115.4124	2347.6774		

Model II estimate of between component variance: •
716 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	6287.6876	2095.8959	.9022	.4430
Residual	100	232302.6827	2323.0268		

Model II estimate of between component variance: •
717 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	6111.4029	2037.1343	.8672	.4609
Residual	98	230224.3645	2349.2282		

Model II estimate of between component variance: •
719 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	22798.5642	7599.5214	3.5307	.0176
Residual	99	213085.8863	2152.3827		

Model II estimate of between component variance: 216.6794
718 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	11075.0718	5537.5359	2.4757	.0892
Residual	101	225910.5649	2236.7383		

Model II estimate of between component variance: 102.4419
717 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	8179.4985	4089.7492	1.8012	.1703
Residual	102	231597.4599	2270.5633		

Model II estimate of between component variance: 55.7219
716 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	1615.8883	538.6294	.2344	.8722
Residual	99	227536.7301	2298.3508		

Model II estimate of between component variance: •
718 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	7543.2301	2514.4100	1.0962	.3545
Residual	99	227088.8445	2293.8267		

Model II estimate of between component variance: 8.6039
718 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	13490.1064	4496.7021	2.0798	.1080
Residual	96	207564.1743	2162.1268		

Model II estimate of between component variance: 94.5172
721 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	5601.1095	1867.0365	1.5330	.2049
Residual	583	710053.8410	1217.9311		

Model II estimate of between component variance: 4.437
234 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	2691.5085	897.1695	.7476	.5240
Residual	591	709219.7794	1200.0335		

Model II estimate of between component variance: •
226 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	4339.0580	1446.3527	1.2050	.3071
Residual	584	700951.6417	1200.2597		

Model II estimate of between component variance: 1.6842
233 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	3223.2474	1074.4158	.9026	.4396
Residual	588	699916.7324	1190.3346		

Model II estimate of between component variance: •
229 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	10861.0417	3620.3472	3.0380	.0286
Residual	569	678065.3931	1191.6791		

Model II estimate of between component variance: 17.002
248 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	8702.2037	2900.7346	2.4200	.0652
Residual	565	677236.9755	1198.6495		

Model II estimate of between component variance: 12.0185
252 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	972.7610	486.3805	.3990	.6712
Residual	591	720484.0903	1219.0932		

Model II estimate of between component variance: •
227 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	2274.9417	1137.4709	.9417	.3906
Residual	596	719918.0349	1207.9162		

Model II estimate of between component variance: •
222 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	2142.0120	714.0040	.6059	.6114
Residual	581	684649.0504	1178.3977		

Model II estimate of between component variance: •
236 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	11852.0873	3950.6958	3.3116	.0198
Residual	589	702671.1078	1192.9900		

Model II estimate of between component variance: 18.6557
228 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	5076.1076	1692.0359	1.4342	.2318
Residual	570	672490.4917	1179.8079		

Model II estimate of between component variance: 3.5753
247 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	156.5350	52.1783	.0530	.9839
Residual	546	537581.8302	984.5821		

Model II estimate of between component variance: •
271 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	618.8648	206.2883	.2123	.8879
Residual	554	538194.2569	971.4698		

Model II estimate of between component variance: •
263 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	731.6647	243.8882	.2493	.8618
Residual	548	536015.2694	978.1301		

Model II estimate of between component variance: •
269 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	1341.6382	447.2127	.4651	.7068
Residual	553	531765.6123	961.6015		

Model II estimate of between component variance: •
264 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	207.3053	69.1018	.0701	.9759
Residual	535	527185.9106	985.3942		

Model II estimate of between component variance: •
282 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	1500.3998	500.1333	.5026	.6807
Residual	530	527424.7236	995.1410		

Model II estimate of between component variance: •
287 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	2257.1844	1128.5922	1.1812	.3077
Residual	554	529318.7068	955.4489		

Model II estimate of between component variance: 1.0064
264 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	811.4161	405.7081	.4250	.6540
Residual	558	532666.4708	954.5994		

Model II estimate of between component variance: •
260 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	8463.2223	2821.0741	3.0090	.0298
Residual	546	511897.8737	937.5419		

Model II estimate of between component variance: 13.9005
271 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	3825.1570	1275.0523	1.3304	.2636
Residual	551	528092.6353	958.4258		

Model II estimate of between component variance: 2.2862
266 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	1509.8779	503.2926	.5216	.6676
Residual	535	516203.3135	964.8660		

Model II estimate of between component variance: •
282 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	8656.4966	2885.4989	2.5083	.0580
Residual	583	670684.3015	1150.4019		

Model II estimate of between component variance: 11.8608
234 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	8582.1902	2860.7301	2.5196	.0571
Residual	592	672146.0665	1135.3819		

Model II estimate of between component variance: 11.7163
225 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	16135.2378	5378.4126	4.7993	.0026
Residual	586	656708.6860	1120.6633		

Model II estimate of between component variance: 29.0328
231 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	2555.4769	851.8256	.7434	.5265
Residual	589	674924.8633	1145.8826		

Model II estimate of between component variance: •
228 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	36989.0846	12329.6949	11.3992	<.0001
Residual	571	617607.3135	1081.6240		

Model II estimate of between component variance: 78.4571
246 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	2859.4398	953.1466	.8449	.4697
Residual	565	637394.4782	1128.1318		

Model II estimate of between component variance: •
252 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	398.0643	199.0322	.1731	.8411
Residual	591	679688.0118	1150.0643		

Model II estimate of between component variance: •
227 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	6874.5587	3437.2793	3.0310	.0490
Residual	596	675884.9786	1134.0352		

Model II estimate of between component variance: 12.1852
222 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	4453.2218	1484.4073	1.2915	.2764
Residual	581	667761.9472	1149.3321		

Model II estimate of between component variance: 2.3292
236 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	5751.6868	1917.2289	1.6890	.1682
Residual	589	668574.2816	1135.1006		

Model II estimate of between component variance: 5.2925
228 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	7463.6573	2487.8858	2.1684	.0907
Residual	570	653974.9262	1147.3244		

Model II estimate of between component variance: 9.3568
247 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	3226.9361	1075.6454	.8625	.4603
Residual	582	725815.6086	1247.1059		

Model II estimate of between component variance: •
235 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	11732.7387	3910.9129	3.1812	.0236
Residual	591	726556.7624	1229.3685		

Model II estimate of between component variance: 18.2394
226 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	14619.1987	4873.0662	3.9418	.0084
Residual	585	723211.0497	1236.2582		

Model II estimate of between component variance: 24.8426
232 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	1215.8793	405.2931	.3251	.8072
Residual	588	733057.2161	1246.6959		

Model II estimate of between component variance: •
229 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	22742.7451	7580.9150	6.2472	.0004
Residual	570	691685.8961	1213.4840		

Model II estimate of between component variance: 44.4971
247 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	5682.7888	1894.2629	1.5344	.2045
Residual	564	696255.6606	1234.4959		

Model II estimate of between component variance: 4.671
253 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	403.1694	201.5847	.1612	.8512
Residual	590	738006.7180	1250.8588		

Model II estimate of between component variance: •
228 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	7944.8453	3972.4226	3.2159	.0408
Residual	595	734972.5792	1235.2480		

Model II estimate of between component variance: 14.5152
223 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	3256.2846	1085.4282	.8751	.4537
Residual	580	719434.9715	1240.4051		

Model II estimate of between component variance: •
237 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	7143.2532	2381.0844	1.9302	.1235
Residual	588	725370.4583	1233.6232		

Model II estimate of between component variance: 7.778
229 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	9270.6150	3090.2050	2.5127	.0577
Residual	569	699786.2252	1229.8528		

Model II estimate of between component variance: 13.0088
248 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	5820.6116	1940.2039	.9872	.3984
Residual	582	1143816.1096	1965.3198		

Model II estimate of between component variance: •
235 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	15176.5427	5058.8476	2.6599	.0474
Residual	591	1124029.3536	1901.9109		

Model II estimate of between component variance: 21.4729
226 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	30524.6884	10174.8961	5.2960	.0013
Residual	585	1123926.8640	1921.2425		

Model II estimate of between component variance: 56.3798
232 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	1872.2419	624.0806	.3188	.8118
Residual	588	1151117.2567	1957.6824		

Model II estimate of between component variance: •
229 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	53434.6852	17811.5617	9.6788	<.0001
Residual	570	1048954.8703	1840.2717		

Model II estimate of between component variance: 111.6112
247 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	4072.9546	1357.6515	.6982	.5534
Residual	564	1096636.7829	1944.3915		

Model II estimate of between component variance: •
253 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	831.1159	415.5579	.2121	.8090
Residual	590	1156020.6890	1959.3571		

Model II estimate of between component variance: •
228 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	9433.1015	4716.5508	2.4148	.0903
Residual	595	1162121.3232	1953.1451		

Model II estimate of between component variance: 14.6543
223 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	7163.8877	2387.9626	1.2295	.2981
Residual	580	1126463.4012	1942.1783		

Model II estimate of between component variance: 3.1043
237 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	15112.1163	5037.3721	2.5949	.0517
Residual	588	1141475.2327	1941.2844		

Model II estimate of between component variance: 20.9866
229 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	11936.7802	3978.9267	2.0664	.1036
Residual	569	1095636.5893	1925.5476		

Model II estimate of between component variance: 14.3585
248 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X01 Quartiles	3	3026.4658	1008.8219	.5284	.6630
Residual	581	1109334.9518	1909.3545		

Model II estimate of between component variance: •
236 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X02 Quartiles	3	11109.6721	3703.2240	1.9882	.1146
Residual	589	1097053.0168	1862.5688		

Model II estimate of between component variance: 12.5596
228 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X03 Quartiles	3	27099.8578	9033.2859	4.8554	.0024
Residual	583	1084658.4031	1860.4775		

Model II estimate of between component variance: 49.1682
234 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X04 Quartiles	3	3358.0568	1119.3523	.5985	.6162
Residual	586	1096039.4828	1870.3745		

Model II estimate of between component variance: •
231 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X05 Quartiles	3	36621.0821	12207.0274	6.7019	.0002
Residual	568	1034567.9693	1821.4225		

Model II estimate of between component variance: 72.8177
249 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X06 Quartiles	3	2849.8784	949.9595	.5021	.6809
Residual	562	1063196.1759	1891.8081		

Model II estimate of between component variance: •
255 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X07 Quartiles	2	6291.5068	3145.7534	1.6571	.1916
Residual	588	1116215.4165	1898.3255		

Model II estimate of between component variance: 6.7697
230 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X08 Quartiles	2	17541.1290	8770.5645	4.7001	.0094
Residual	594	1108430.2915	1866.0443		

Model II estimate of between component variance: 36.653
224 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X09 Quartiles	3	7810.3453	2603.4484	1.3848	.2464
Residual	578	1086624.9961	1879.9740		

Model II estimate of between component variance: 5.0592
239 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X10 Quartiles	3	15279.5757	5093.1919	2.7302	.0432
Residual	587	1095054.8229	1865.5108		

Model II estimate of between component variance: 21.9172
230 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
X11 Quartiles	3	17638.6632	5879.5544	3.1491	.0247
Residual	568	1060473.2738	1867.0304		

Model II estimate of between component variance: 28.1061
249 cases were omitted due to missing values.

APPENDIX E: ANOVA SUMMARY TABLE — DEMOGRAPHICS

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	4657.484	4657.484	4.980	.0259
Residual	807	754701.650	935.194		

Model II estimate of between component variance: 9.366
12 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	3928.692	3928.692	3.568	.0593
Residual	661	727756.392	1100.993		

Model II estimate of between component variance: 8.725
158 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	696.717	696.717	.691	.4061
Residual	608	612822.165	1007.931		

Model II estimate of between component variance: •
211 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	5532.966	5532.966	3.103	.0787
Residual	576	1027020.817	1783.022		

Model II estimate of between component variance: 13.269
243 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	38.483	38.483	.030	.8615
Residual	608	768510.216	1263.997		

Model II estimate of between component variance: •
211 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	10436.560	10436.560	4.663	.0331
Residual	103	230519.393	2238.052		

Model II estimate of between component variance: 159.415
716 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	3522.034	3522.034	2.898	.0892
Residual	604	734027.877	1215.278		

Model II estimate of between component variance: 7.826
215 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	985.214	985.214	1.043	.3076
Residual	566	534822.177	944.916		

Model II estimate of between component variance: .145
253 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	30210.030	30210.030	27.585	<.0001
Residual	605	662582.099	1095.177		

Model II estimate of between component variance: 98.662
214 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	40744.951	40744.951	34.392	<.0001
Residual	604	715565.312	1184.711		

Model II estimate of between component variance: 134.369
215 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	39097.394	39097.394	20.558	<.0001
Residual	604	1148684.826	1901.796		

Model II estimate of between component variance: 126.337
215 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D03 Gender (Q8B)	1	12244.875	12244.875	6.563	.0107
Residual	602	1123181.068	1865.749		

Model II estimate of between component variance: 35.377
217 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	27875.262	9291.754	10.237	<.0001
Residual	806	731586.176	907.675		

Model II estimate of between component variance: 93.147
11 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	24078.752	8026.251	7.485	<.0001
Residual	660	707678.734	1072.241		

Model II estimate of between component variance: 81.374
157 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	11590.590	3863.530	3.844	.0096
Residual	607	610097.530	1005.103		

Model II estimate of between component variance: 34.648
210 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	94333.046	31444.349	19.238	<.0001
Residual	574	938220.737	1634.531		

Model II estimate of between component variance: 369.681
243 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	13071.247	4357.082	3.500	.0153
Residual	607	755578.521	1244.775		

Model II estimate of between component variance: 37.726
210 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	17532.274	5844.091	2.642	.0534
Residual	101	223423.679	2212.116		

Model II estimate of between component variance: 183.052
716 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	27415.410	9138.470	7.759	<.0001
Residual	603	710219.701	1177.810		

Model II estimate of between component variance: 97.118
214 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	228.210	76.070	.080	.9707
Residual	565	535801.118	948.321		

Model II estimate of between component variance: •
252 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	8607.469	2869.156	2.528	.0564
Residual	604	685401.821	1134.771		

Model II estimate of between component variance: 21.046
213 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	16320.331	5440.110	4.430	.0043
Residual	603	740472.341	1227.981		

Model II estimate of between component variance: 51.131
214 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	15777.216	5259.072	2.703	.0447
Residual	603	1173037.132	1945.335		

Model II estimate of between component variance: 40.226
214 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D04 Marital Status (Q8C)	3	36304.474	12101.491	6.613	.0002
Residual	601	1099861.011	1830.052		

Model II estimate of between component variance: 124.777
216 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	14169.926	4723.309	5.103	.0017
Residual	804	744123.874	925.527		

Model II estimate of between component variance: 19.904
13 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	883.968	294.656	.266	.8499
Residual	660	730873.518	1107.384		

Model II estimate of between component variance: •
157 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	11911.258	3970.419	3.952	.0083
Residual	607	609776.862	1004.575		

Model II estimate of between component variance: 20.396
210 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	44210.257	14736.752	8.559	<.0001
Residual	574	988343.526	1721.853		

Model II estimate of between component variance: 94.515
243 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	14721.348	4907.116	3.951	.0083
Residual	607	753928.420	1242.057		

Model II estimate of between component variance: 25.205
210 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	10532.702	3510.901	1.539	.2091
Residual	101	230423.250	2281.418		

Model II estimate of between component variance: 48.508
716 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	19154.312	6384.771	5.359	.0012
Residual	603	718480.799	1191.510		

Model II estimate of between component variance: 35.96
214 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	928.481	309.494	.327	.8060
Residual	565	535100.847	947.081		

Model II estimate of between component variance: •
252 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	8474.680	2824.893	2.489	.0595
Residual	604	685534.610	1134.991		

Model II estimate of between component variance: 11.676
213 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	13515.497	4505.166	3.655	.0124
Residual	603	743277.175	1232.632		

Model II estimate of between component variance: 22.641
214 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	19689.669	6563.223	3.385	.0179
Residual	603	1169124.679	1938.847		

Model II estimate of between component variance: 31.994
214 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D15 Age Category	3	15614.408	5204.803	2.792	.0398
Residual	601	1120551.077	1864.478		

Model II estimate of between component variance: 23.181
216 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	9818.717	1963.743	2.126	.0604
Residual	795	734303.304	923.652		

Model II estimate of between component variance: 20.988
20 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	10810.647	2162.129	2.008	.0756
Residual	653	703056.851	1076.657		

Model II estimate of between component variance: 29.159
162 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	3774.795	754.959	.742	.5921
Residual	600	610367.984	1017.280		

Model II estimate of between component variance: •
215 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	17159.861	3431.972	1.925	.0884
Residual	567	1010764.959	1782.654		

Model II estimate of between component variance: 53.142
248 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	2801.864	560.373	.450	.8137
Residual	600	747983.460	1246.639		

Model II estimate of between component variance: •
215 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	7975.965	1595.193	.663	.6523
Residual	96	230927.568	2405.495		

Model II estimate of between component variance: •
719 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	7788.453	1557.691	1.289	.2671
Residual	596	720470.264	1208.843		

Model II estimate of between component variance: 10.442
219 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	26693.472	5338.694	5.884	<.0001
Residual	558	506319.701	907.383		

Model II estimate of between component variance: 144.737
257 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	10790.872	2158.174	1.901	.0923
Residual	597	677717.224	1135.205		

Model II estimate of between component variance: 30.9
218 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	6106.184	1221.237	.978	.4303
Residual	596	744109.763	1248.506		

Model II estimate of between component variance: •
219 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	11241.197	2248.239	1.145	.3354
Residual	596	1170558.554	1964.024		

Model II estimate of between component variance: 8.587
219 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D05 Ethnic Identity (Q8D)	5	25428.214	5085.643	2.733	.0188
Residual	594	1105475.518	1861.070		

Model II estimate of between component variance: 97.456
221 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	9596.403	2399.101	2.597	.0351
Residual	804	742649.526	923.693		

Model II estimate of between component variance: 9.77
12 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	746.249	186.562	.168	.9547
Residual	658	731011.039	1110.959		

Model II estimate of between component variance: •
158 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	6188.183	1547.046	1.523	.1938
Residual	606	615499.937	1015.676		

Model II estimate of between component variance: 4.718
210 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	10410.344	2602.586	1.459	.2133
Residual	573	1022143.438	1783.845		

Model II estimate of between component variance: 7.739
243 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	4700.096	1175.024	.932	.4448
Residual	606	763949.672	1260.643		

Model II estimate of between component variance: •
210 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	5016.464	1254.116	.532	.7128
Residual	100	235939.488	2359.395		

Model II estimate of between component variance: •
716 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	6104.942	1526.235	1.256	.2861
Residual	602	731530.169	1215.166		

Model II estimate of between component variance: 2.781
214 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	11865.541	2966.385	3.192	.0131
Residual	564	524163.787	929.368		

Model II estimate of between component variance: 19.488
252 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	8895.967	2223.992	1.957	.0995
Residual	603	685113.323	1136.175		

Model II estimate of between component variance: 9.698
213 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	3434.986	858.747	.686	.6017
Residual	602	753357.686	1251.425		

Model II estimate of between component variance: •
214 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	3251.341	812.835	.413	.7995
Residual	602	1185563.007	1969.374		

Model II estimate of between component variance: •
214 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D07 Class (Q8F)	4	6140.842	1535.211	.815	.5158
Residual	600	1130024.643	1883.374		

Model II estimate of between component variance: •
216 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	50.643	25.322	.024	.9763
Residual	436	459494.697	1053.887		

Model II estimate of between component variance: •
382 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	127.408	63.704	.056	.9455
Residual	338	384313.593	1137.022		

Model II estimate of between component variance: •
480 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	3887.713	1943.857	1.751	.1754
Residual	309	343100.504	1110.358		

Model II estimate of between component variance: 8.251
509 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	19665.555	9832.778	5.425	.0049
Residual	293	531102.926	1812.638		

Model II estimate of between component variance: 83.96
525 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	415.215	207.607	.185	.8311
Residual	309	346503.773	1121.371		

Model II estimate of between component variance: •
509 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	1940.659	970.329	.401	.6719
Residual	47	113731.704	2419.823		

Model II estimate of between component variance: •
771 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	6514.714	3257.357	2.447	.0883
Residual	307	408701.619	1331.276		

Model II estimate of between component variance: 19.219
511 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	20.863	10.431	9.411E-3	.9906
Residual	285	315895.000	1108.404		

Model II estimate of between component variance: •
533 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	8700.434	4350.217	3.684	.0263
Residual	306	361363.123	1180.925		

Model II estimate of between component variance: 31.668
512 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	258.697	129.349	.102	.9033
Residual	306	389246.582	1272.048		

Model II estimate of between component variance: •
512 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	11507.110	5753.555	3.036	.0495
Residual	306	579886.765	1895.055		

Model II estimate of between component variance: 38.555
512 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D17 Religion Category	2	6488.863	3244.431	1.829	.1623
Residual	306	542831.832	1773.960		

Model II estimate of between component variance: 14.693
512 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	4522.246	1507.415	1.610	.1856
Residual	796	745347.279	936.366		

Model II estimate of between component variance: 3.91
21 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	3953.539	1317.846	1.199	.3092
Residual	654	718629.671	1098.822		

Model II estimate of between component variance: 1.866
163 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	8332.912	2777.637	2.739	.0427
Residual	601	609436.301	1014.037		

Model II estimate of between component variance: 16.357
216 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	57552.941	19184.314	11.216	<.0001
Residual	568	971545.264	1710.467		

Model II estimate of between component variance: 175.724
249 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	5444.182	1814.727	1.476	.2199
Residual	601	738893.532	1229.440		

Model II estimate of between component variance: 5.41
216 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	9171.736	3057.245	1.404	.2462
Residual	100	217808.923	2178.089		

Model II estimate of between component variance: 66.869
717 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	14018.926	4672.975	3.873	.0092
Residual	597	720358.126	1206.630		

Model II estimate of between component variance: 32.198
220 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	3724.212	1241.404	1.300	.2734
Residual	559	533607.889	954.576		

Model II estimate of between component variance: 2.919
258 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	14611.876	4870.625	4.321	.0050
Residual	597	672902.960	1127.141		

Model II estimate of between component variance: 34.868
220 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	20583.382	6861.127	5.627	.0008
Residual	596	726763.682	1219.402		

Model II estimate of between component variance: 52.578
221 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	20106.707	6702.236	3.460	.0162
Residual	596	1154515.992	1937.107		

Model II estimate of between component variance: 44.409
221 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D18 Residence	3	13289.242	4429.747	2.356	.0709
Residual	594	1116736.621	1880.028		

Model II estimate of between component variance: 23.855
223 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	2603.080	1301.540	1.394	.2487
Residual	772	720855.549	933.751		

Model II estimate of between component variance: 1.657
46 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	2539.244	1269.622	1.155	.3158
Residual	637	700345.199	1099.443		

Model II estimate of between component variance: .956
181 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	7582.127	3791.063	3.807	.0228
Residual	585	582623.368	995.937		

Model II estimate of between component variance: 17.388
233 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	21885.981	10942.991	6.210	.0022
Residual	554	976162.969	1762.027		

Model II estimate of between component variance: 59.667
264 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	1357.173	678.586	.560	.5716
Residual	585	709043.730	1212.041		

Model II estimate of between component variance: •
233 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	12939.670	6469.835	3.096	.0496
Residual	99	206865.845	2089.554		

Model II estimate of between component variance: 150.891
719 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	9052.799	4526.400	3.831	.0222
Residual	581	686498.774	1181.581		

Model II estimate of between component variance: 20.925
237 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	6.496	3.248	3.314E-3	.9967
Residual	544	533079.270	979.925		

Model II estimate of between component variance: •
274 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	12.942	6.471	5.636E-3	.9944
Residual	581	667040.222	1148.090		

Model II estimate of between component variance: •
237 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	2003.231	1001.615	.811	.4451
Residual	580	716592.118	1235.504		

Model II estimate of between component variance: •
238 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	4691.857	2345.929	1.194	.3038
Residual	580	1139830.285	1965.225		

Model II estimate of between component variance: 2.403
238 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D19 Evangelical Scale	2	4146.540	2073.270	1.090	.3368
Residual	578	1099229.331	1901.781		

Model II estimate of between component variance: 1.084
240 cases were omitted due to missing values.

ANOVA Table for U01

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	3	161556.836	53852.279	74.783	<.0001
Residual	780	561690.732	720.116		

Model II estimate of between component variance: 324.256
37 cases were omitted due to missing values.

ANOVA Table for U02

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	3	21576.561	7192.187	6.709	.0002
Residual	652	698985.493	1072.064		

Model II estimate of between component variance: 54.121
165 cases were omitted due to missing values.

ANOVA Table for U03

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	375.608	187.804	.183	.8330
Residual	602	618718.324	1027.771		

Model II estimate of between component variance: •
216 cases were omitted due to missing values.

ANOVA Table for U04

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	6367.086	3183.543	1.772	.1709
Residual	570	1024038.932	1796.560		

Model II estimate of between component variance: 9.435
248 cases were omitted due to missing values.

ANOVA Table for U05

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	14221.854	7110.927	5.880	.0030
Residual	602	728032.169	1209.356		

Model II estimate of between component variance: 38.274
216 cases were omitted due to missing values.

ANOVA Table for U06

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	11470.516	5735.258	2.688	.0729
Residual	101	215510.143	2133.764		

Model II estimate of between component variance: 128.802
717 cases were omitted due to missing values.

ANOVA Table for U07

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	3671.181	1835.590	1.502	.2234
Residual	598	730588.091	1221.719		

Model II estimate of between component variance: 4.004
220 cases were omitted due to missing values.

ANOVA Table for U08

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	756.673	378.337	.394	.6745
Residual	560	537572.817	959.951		

Model II estimate of between component variance: •
258 cases were omitted due to missing values.

ANOVA Table for U09

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	29938.765	14969.383	13.590	<.0001
Residual	598	658693.695	1101.494		

Model II estimate of between component variance: 90.452
220 cases were omitted due to missing values.

ANOVA Table for U10

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	41088.189	20544.094	17.379	<.0001
Residual	597	705719.861	1182.110		

Model II estimate of between component variance: 126.559
221 cases were omitted due to missing values.

ANOVA Table for U11

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	32746.275	16373.138	8.574	.0002
Residual	597	1140099.504	1909.714		

Model II estimate of between component variance: 94.539
221 cases were omitted due to missing values.

ANOVA Table for U12

	DF	Sum of Squares	Mean Square	F-Value	P-Value
D14 Partner's Gender (Q8M)	2	14217.393	7108.697	3.787	.0232
Residual	595	1116996.948	1877.306		

Model II estimate of between component variance: 34.309
223 cases were omitted due to missing values.